THIRD FIVE-YEAR REVIEW REPORT

FOR THE

BAILEY WASTE DISPOSAL SUPERFUND SITE
ORANGE COUNTY, TEXAS

September 2010

United States Environmental Protection Agency
Region 6
Dallas, Texas

900104

THIRD FIVE-YEAR REVIEW REPORT
Bailey Waste Disposal Superfund Site
EPA ID No.
TXD980864649

Orange County, Texas

This memorandum documents the U.S. Environmental Protection Agency's performance, determinations, and approval of the Bailey Waste Disposal Superfund Site third five-year review under Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 United States Code § 9621(c), as provided in the attached Third Five-Year Review Report.

Summary of Third Five-Year Review Findings

The Site remedy called for excavation and offsite disposal of the most problematic (i.e., mobile) waste followed by the onsite consolidation and capping of the remaining contaminated soils. The Site's construction activities were completed in August 1997. The Site's caps are effective at containing contaminants by preventing infiltration of rainwater and by preventing direct contact with contaminated soils. The Site's caps are overall in good condition, and the fence has been repaired as of 2009. Minor erosion, exposed geotextile material, small desiccation cracking, abandoned animal burrows, evidence of cap settling along the north and east dikes, warning signs in need of repair, and stressed vegetation were observed during the Site inspection. Additionally, minor rusting was noted on the support structure for the Site access bridge.

Actions Needed

To achieve the long-term effectiveness of the remedy, it will be necessary to maintain the integrity and effectiveness of the final cover in accordance with approved plans, including making repairs to the caps as necessary to correct the effects of erosion, settlement, desiccation cracking, and animal activities. Additionally, the Site access bridge should be maintained to prevent further rust build-up and to ensure bridge stability.

Determinations

I have determined that the selected remedy for the Bailey Waste Disposal Superfund Site is protective of human health and the environment and will remain so provided the action items identified in the Five-Year Review Report are addressed as described above.

By: Pamela Phillips, Acting _____ 9/7/10
Samuel Coleman, P.E. Date
Director, Superfund Division
U.S. EPA Region 6

CONCURRENCES:

THIRD FIVE-YEAR REVIEW REPORT
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EPA ID No. TXD980864649

Document Reviewed By:

Chris Villarreal Date: 8/13/2010
Chris Villarreal
U.S. EPA Region 6
Remedial Project Manager

Concur By: Carlos A. Sanchez Date: 8/13/2010
Carlos A. Sanchez
U.S. EPA Region 6
Chief, AR/TX Section, Superfund Remedial Branch

Concur By: Carlos A. Sanchez Date: 8/13/2010
for Donald H. Williams
U.S. EPA Region 6
Deputy Associate Director, Superfund Remedial Branch

Concur By: Charles Faultry Date: 9/17/10
Charles Faultry
U.S. EPA Region 6
Associate Director, Superfund Remedial Branch

Concur By: Anne Foster Date: 8/24/10
Anne Foster
U.S. EPA Region 6
Attorney, Office of Regional Counsel

Concur By: Mark A. Peycke Date: 08/30/10
Mark A. Peycke
U.S. EPA Region 6
Chief, Superfund Branch, Office of Regional Counsel

Concur By: Pam Phillips Date: 9/8/10
Pam Phillips
U.S. EPA Region 6
Deputy Director, Superfund Division

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LIST OF ACRONYMS

ARAR	Applicable or Relevant and Appropriate Requirement
BSSC	Bailey Site Settlor's Committee
BWD	Bailey Waste Disposal
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
EA	EA Engineering, Science, and Technology, Inc.
EPA	U.S. Environmental Protection Agency Region 6
FFS	focused feasibility study
FS	feasibility study
GeoSyntec	GeoSyntec Consultants
HLA	Harding Lawson Associates
IMMP	Inspection, Maintenance, and Monitoring Plan
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
O&M	operation and maintenance
OHM	OHM Remediation Services
OSWER	Office of Solid Waste and Emergency Response
OU	operable unit
Parsons	Parsons Engineering Science, Inc.
PRP	potentially responsible party
RA	remedial action
RCRA	Resource Conservation and Recovery Act
RI	remedial investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
Site	Bailey Waste Disposal Superfund Site
TCEQ	Texas Commission on Environmental Quality
Tetra Tech	Tetra Tech EM, Inc.

EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency Region 6 (EPA) has conducted the third five-year review of the remedial action (RA) implemented at the Bailey Waste Disposal (BWD) Superfund Site (Site), approximately 3 miles southwest of Bridge City in Orange County, Texas. The purpose of this five-year review was to determine whether the selected remedy for the Site continues to protect human health and the environment. This review was conducted from May to July 2010, and its findings and conclusions are documented in this report. The second five-year review of the RA was completed in September 2005. The third five-year review period extended from 2005 to 2010.

Several documents were reviewed as part of this five-year review: 1989 Consent Decree (U.S. District Court 1989), EPA Final Close Out Report (EPA 2007a), EPA Direct Final Notice of Deletion of the BWD Superfund Site from the National Priorities List (EPA 2007b), Record of Decision (ROD) (EPA 1988), Amended ROD (EPA 1996), EPA Deed Notices of Capped Facility (EPA 2006), second five-year review for the Site (Tetra Tech EM, Inc. [Tetra Tech] 2005), and annual site inspection reports for 2006 and 2007 (Parsons Engineering Science, Inc. [Parsons] 2006, 2008).

The Site was initially defined by the EPA in the 1980s to include two rectangular ponds and occupy approximately 280 acres. Based on the numerous years of site investigations and remedial activities, the actual area where contamination was identified and addressed by remedial activities was much smaller than the initial 280-acre site designation. The areas of the Site that required remediation included: (1) North Marsh Area (approximately 4 acres), (2) North Dike Area (approximately 9 acres), and (3) East Dike Area (approximately 6 acres).

In June 1988, the EPA selected *in situ* stabilization and capping as the preferred alternative for cleanup. In December 1996, due to demonstrated difficulties in achieving the project's *in situ* stabilization specifications and the fact that successful implementation of the original remedy would be significantly more difficult, more time-consuming, and more costly than was contemplated at the time of the original ROD, the EPA selected and approved a revised remedy

consisting of the offsite disposal of the Site's most problematic (i.e., mobile) waste, consolidating the remaining waste material into areas to be capped and constructing lightweight composite caps. The revised RA was completed in August 1997.

The long-term effectiveness and permanence of the remedy will be achieved by maintaining the integrity of the caps. The caps are maintained by preventing desiccation and/or settlement cracking, penetration by plant roots, burrowing by animals, and erosion. The maintenance and monitoring program for the Site includes site inspections, site maintenance, and submission of regularly scheduled reports to EPA.

Since hazardous substances remained at the Site above health-based levels after completion of the RA, the EPA must conduct a statutory review every five years, pursuant to Section 121(c) of the Comprehensive Environmental Response, Compensation, and Liability Act and as provided in Office of Solid Waste and Emergency Response (OSWER) Directive 9355.7-02, Structure and Components of Five-Year Reviews, 23 May 1991; OSWER Directive 9355.7-02A, Supplemental Five-Year Review Guidance, 26 July 1994; Second Supplemental Five-Year Review Guidance, 21 December 1996; and OSWER Directive 9355.7-03B-P Draft Comprehensive Five-Year Review Guidance, October 1999.

EPA completed the third five-year review inspection of the Site on 18 May 2010, which consisted of the following activities: review of relevant documents, interviews with local government officials and representatives of the maintenance contractors, and a five-year review site inspection. The inspection verified that the containment remedy was functioning as designed; overall, the caps are being maintained in an appropriate manner, with only a few deficiencies not expected to immediately impact the protectiveness of the remedy noted. These deficiencies will be addressed. The remedy is protective of human health and the environment. Institutional controls that will help ensure protectiveness in the long term were issued by EPA in the form of Deed Notices filed with the Orange County Clerk in Orange, Texas, in July 2006. These notices address a 7.836-acre capped tract owned by R&R Recreation Inc. (North Dike Area) and a 7.576-acre capped tract owned by Leslie L. Appelt (East Dike Area) (EPA 2006). One other requirement of a five-year review is to determine if there are any new requirements

that may pertain to the Site. No newly promulgated requirements that pertain to the Site were identified.

The remedies at the North Dike Area, East Dike Area, and North Marsh Area are protective of human health and the environment. The caps are effective at containing contaminants by preventing infiltration of rainwater and preventing direct contact with contaminated soils. The long-term effectiveness of the remedy will be enabled through the institutional controls discussed above. The legal and administrative institutional controls assist in preventing exposure to concentrations of contaminants above health-based risk levels that may remain at the Site.

Since this is a statutory site that requires ongoing five-year reviews, the next review will be conducted within five years of the completion of this five-year review report. This review included the general site maintenance performed since the last five-year review (2005) through 2009. The following issues were noted during the 18 May 2010 site inspection:

- The landowner noted concerns with the integrity of the Site access bridge. After Hurricane Ike in 2008, the landowner has noted saltwater on the "I" beams and rusting around the support structure of the bridge.
- An abandoned armadillo burrow was noted along the North Dike Cap between the second and third "W" vents. It should be noted that based on the finding of the five-year review inspection, no new animal burrows appear to have been created since Hurricane Ike in 2008.
- North and East Dike riprap issues – vegetation is growing within the riprap of both the North and East Dike Caps, desiccation cracks were noted along the tops of both dikes, and exposed geotextile material was also noted along the top of the North Dike Cap. Debris was also noted within the riprap for both Dike Caps.
- As a result of dry conditions, patches of sparse vegetation and soil cracks to 4 inches deep were noted in both the North Dike and East Dike Caps.
- The fencing located to the north of the main entrance gate has been corroded and the integrity has been compromised.
- Fire ant mounds and a small depression were noted between the "W1" and "W2" vents along the North Dike.

- East Dike – ruts were noted between the third and fourth vents (viewed from north to south). A low area was also noted in this dike near the fourth vent.

- Warning signs – the sign located at the south side of the North Dike has been damaged, and the sign near the third vent along the North Dike is missing.

The following actions are needed in response to these issues:

- Perform bridge maintenance to reduce corrosion. In addition to regular maintenance prescribed in the Final Inspection, Maintenance, and Monitoring Plan (IMMP) (Parsons and GeoSyntec Consultants [GeoSyntec] 1997), it is recommended that corroded areas be sanded and painted.

- Repair the burrowed cap areas and backfill burrows with a competent backfill material.

- Consider the use of an herbicide to eliminate vegetation from the riprap, or manually remove vegetation during regular site visits. Watering the caps should be considered to promote vegetation growth and minimize desiccation cracking. If exposed, inspect the geotextile fabric for integrity, and remove accumulated debris during regular site visits.

- Consider watering the North Dike and East Dike Caps in times of drought or low rainfall to minimize soil cracking.

- Repair the fencing to the north of the main entrance gate.

- Consider eradication of fire ants along the North Dike. Survey the depression noted in the North Dike during regular site visits to determine if the cap is settling over time. If cap settlement has occurred, bring in and grade general fill to restore the cap grade needed to promote storm water runoff. Seed and fertilize the general fill to promote a vegetative cover.

- Repair ruts noted in the East Dike, and survey the depressions along the East Dikes during regular site visits to determine if the cap is settling over time. If cap settlement has occurred, bring in and grade general fill to restore the cap grade needed to promote storm water runoff. Seed and fertilize the general fill to promote a vegetative cover.

- Repair warning sign at the south side of the North Dike and replace the sign near the third vent along the North Dike.

The Bailey Site Settlors Committee (BSSC) is responsible for implementing these actions. The BSSC's maintenance and monitoring requirements are described in the IMMP. If the items in this Five-Year Review are not addressed in a timely fashion, the requirements of the IMMP may

need to be modified.

At this time, based on the information available during the third five-year review, the selected remedy appears to be protective of human health and the environment, and will remain so provided that the landfill caps are maintained, and access restrictions are maintained.

Five-Year Review Summary Form

SITE IDENTIFICATION

Site Name (from Waste LAN): Bailey Waste Disposal Superfund Site

EPA ID (from Waste LAN): TXD980864649

Region: 6 | **State:** Texas | **City/County:** Bridge City/Orange County

SITE STATUS

NPL Status: ☐ Final ☒ Deleted ☐ Other (specify) _____

Remediation Status (choose all that apply): ☐ Under Construction ☐ Operating ☒ Complete

Multiple OUs?* ☐ YES ☒ NO **Construction Completion Date:** August 1997

Has site been put into reuse? ☒ YES ☐ NO

REVIEW STATUS

Reviewing Agency: ☒ EPA ☐ State ☐ Tribe ☐ Other Federal Agency _____

Author Name: Mr. Chris Villarreal

Author Title: Remedial Project Manager | **Author Affiliation:** EPA Region 6

Review Period:** 2005–2010

Date(s) of Site Inspection: 18 May 2010

Type of Review: ☒ Statutory ☐ Policy ☐ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion

Review Number: ☐ 1 (first) ☐ 2 (second) ☒ 3 (third) ☐ Other (specify) _____

Triggering Action:

☐ Actual RA Onsite Construction at OU ☐ Actual RA Start ☐ Construction Completion ☒ Previous Five-Year Review Report ☐ Other (specify) _____

Triggering Action Date (from Waste LAN): 28 September 2005

Due Date (Five Years After Triggering Action Date): 28 September 2010

* OU refers to operable unit.

** The review period refers to the period during which the five-year review was conducted.

Five-Year Review Summary Form (Continued)

Issues:

- ***Site Access Bridge*—**Landowner has noted concerns with the integrity of the bridge. After Hurricane Ike in 2008, the landowner has noted saltwater on the "I" beams and rusting around the support structure of the bridge.

- ***Animal Activity*—**An abandoned armadillo burrow was noted along the North Dike Cap between the second and third "W" vents. It should be noted that based on the finding of the five-year review inspection, no new animal burrows appear to have been created since Hurricane Ike in 2008.

- ***Riprap Issues*—**Vegetation is growing within the riprap of both the North and East Dike Caps, desiccation cracks were noted along the tops of both dikes, and exposed geotextile material was also noted along the top of the North Dike Cap. Debris was also noted within the riprap for both Dike Caps.

- ***Dike Cap Desiccation*—**As a result of dry conditions, patches of sparse vegetation and soil cracks to 4 inches deep were noted in both the North Dike and East Dike Caps.

- ***Site Access Issues*—**Fencing located to the north of the main entrance gate has been corroded and the integrity has been compromised.

- ***Insect Mounds and Cap Depressions*—**Fire ant mounds and a small depression were noted between the "W1" and "W2" vents along the North Dike.

- ***East Dike*—**Ruts were noted between the third and fourth vents (viewed from north to south). A low area was also noted in this dike near the fourth vent.

- ***Warning Signs*—**The sign located at the south side of the North Dike has been damaged, and the sign near the third vent along the North Dike is missing.

Recommendations and Follow-up Actions:

- Perform bridge maintenance to reduce corrosion. In addition to regular maintenance prescribed in the Final IMMP (Parsons and GeoSyntec 1997), it is recommended that corroded areas be sanded and painted.

- Repair the burrowed cap areas and backfill burrows with a competent backfill material.

- Consider the use of an herbicide to eliminate vegetation from the riprap, or manually remove vegetation during regular site visits. Watering the caps should be considered to promote vegetation growth and minimize desiccation cracking. If exposed, inspect the geotextile fabric for integrity, and remove accumulated debris during regular site visits.

- Consider watering the North Dike and East Dike Caps in times of drought or low rainfall to minimize soil cracking.

- Repair the fencing to the north of the main entrance gate.

- Consider eradication of fire ants along the North Dike. Survey the depression noted in the North Dike during regular site visits to determine if the cap is settling over time. If cap settlement has occurred, bring in and grade general fill to restore the cap grade needed to promote storm water runoff. Seed and fertilize the general fill to promote a vegetative cover.

- Repair ruts noted in the East Dike, and survey the depressions along the East Dikes during regular site visits to determine if the cap is settling over time. If cap settlement has occurred, bring in and grade general fill to restore the cap grade needed to promote storm water runoff. Seed and fertilize the general fill to promote a vegetative cover.

- Repair warning sign at the south side of the North Dike and replace the sign near the third vent along the North Dike.

Protectiveness Statement:

Based on the information available during the third five-year review, the selected remedy for the Site is currently protective of human health and the environment and current human exposure is controlled.

Long-Term Protectiveness:

The third five-year review found that the selected remedy is performing as intended and is protective of human health and the environment. The recommendations and follow-up actions identified in this five-year review process should be addressed to ensure the long-term remedy will remain protective of human health and the environment.

1.0 INTRODUCTION

The U.S. Environmental Protection Agency Region 6 (EPA), with assistance from EA Engineering, Science, and Technology, Inc. (EA), and in coordination with the Texas Commission on Environmental Quality (TCEQ), the Bailey Site Settlor's Committee (BSSC), and the landowner (Mr. Rodney Townsend) has conducted a third five-year review of the remedial action (RA) implemented at the Bailey Waste Disposal (BWD) Superfund Site (Site) in Orange County, Texas. The purpose of a five-year review is to determine whether the remedy at a site remains protective of human health and the environment and to document the methods, findings, and conclusions of the five-year review process in a report. The report will identify issues found during each review, if any, and make recommendations to address the issues. This Third Five-Year Review Report documents the results of the review for BWD, conducted in accordance with EPA guidance (EPA 2001) on five-year reviews.

The five-year review process is required by federal statute. The EPA must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA Section 121(c), 42 United States Code § 9621 (c), states the following:

> "If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented."

NCP Section 300.430(f)(4)(ii) states the following:

> "If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action."

Because hazardous substances, pollutants, or contaminants remain at the Site above levels that allow for unlimited use and unrestricted exposure, a statutory five-year review is required.

Since the Second Five-Year Review Report was signed on 28 September 2005, the period addressed by this five-year review for the Site extended from 2005 to 2010. The triggering action for this review was the Second Five-Year Review Report completed in September 2005. This third five-year review was conducted from May through July 2010; its methods, findings, conclusions, and recommendations are documented in this report.

This report documents the five-year review for the Site by providing the following information: Site chronology (Section 2.0), background information (Section 3.0), an overview of the RAs (Section 4.0), progress since the second five-year review (Section 5.0), the five-year review process (Section 6.0), technical assessment of the Site (Section 7.0), institutional controls (Section 8.0), issues (Section 9.0), recommendations and follow-up actions (Section 10.0), protectiveness statement (Section 11.0), and discussion of the next review (Section 12.0). Attachment 1 provides a list of documents reviewed, Attachment 2 provides the Site inspection checklist, Attachment 3 provides Site survey forms, Attachment 4 provides the Site inspection photographs, and Attachment 5 provides a copy of the Deed Notice (EPA 2006) for the Site.

2.0 SITE CHRONOLOGY

A chronology of events for the Site is provided in Table 1. Additional historical information is available online at http://www.epa.gov/earth1r6/6sf/pdffiles/0602911.pdf (EPA 2010).

TABLE 1

CHRONOLOGY OF SITE EVENTS
BAILEY WASTE DISPOSAL SUPERFUND SITE

Date	Event
1950s-1960s	Industrial wastes, primarily organics, were disposed of along the north and east margins of Pond A
1979	EPA released a report stating that industrial wastes were disposed of at the Site
1980	Texas Water Commission did a preliminary assessment of the Site
1981-1982	Gulf States Utility (landowner at the time) investigated dimension and chemical characteristics of the waste pits
October 1984	Site proposed for the National Priorities List (NPL)
December 1984	State of Texas entered into a cooperative Agreement with EPA to conduct a Remedial Investigation (RI) and Feasibility Study (FS)

TABLE 1

CHRONOLOGY OF SITE EVENTS
BAILEY WASTE DISPOSAL SUPERFUND SITE (continued)

Date	Event
1986	Site included on the NPL
October 1987	RI completed by Woodward-Clyde Consultants
25 April 1988	Potentially Responsible Party's (PRP's) FS completed by Parsons Engineering Science, Inc. (Parsons)
28 June 1988	Record of Decision (ROD) signed
September 1989	Consent Decree signed
November 1991	Remedial Design for the original remedy is completed by Harding Lawson Associates (HLA)
September 1992	Chemical Waste Management mobilizes to implement original remedy
January 1994	Initial RA (original remedy) is halted when stabilization requirements prove to be unattainable
November 1994	North Marsh Design (Interim Remedial Design) Completed by HLA
June 1995	EPA recommends a Focused Feasibility Study (FFS)
June 1995	Chemical Waste Management demobilizes from the Site
June 1995	GeoSyntec begins FFS and associated studies (i.e., North Dike Technical Memorandum and East Dike Technical Memorandum); Parsons assumes Contract Administration/Construction Management Services
November 1995	Modified North Marsh Design (Interim Remedial Design) is completed by GeoSyntec, which revised the technical specifications of the North Marsh Design
January 1996	OHM Remediation Services (OHM) mobilizes to conduct the Interim RA
8 February 1996	Explanation of Significant Differences issued by EPA for the treatment and handling of the North Marsh Wastes
1 May 1996	Explanation of Significant Difference issued by EPA for RAs associated with Pit B
September 1996	OHM completes Interim RA Activities
24 October 1996	FFS Report approved by EPA
December 1996	ROD Amended
December 1996	Design of Final Revised RA completed by GeoSyntec
January 1997	OHM mobilizes to conduct Final RA (i.e., begin construction of two separate lightweight composite caps, one each over the North and East Dike Areas)
August 1997	Final Revised RA completed
September 1997	Final Inspection, Maintenance, and Monitoring Plan (IMMP) issued by Parsons
September 1998	Preliminary Close Out Report
September 2000	First Five-Year Review completed
July 2000	Annual Site Inspection Report by Parsons
September 2001	Annual Site Inspection Report by Parsons
April 2002	Annual Site Inspection Report by Parsons
September 2003	Annual Site Inspection Report by Parsons
25 September 2003	North and East Dike Cap Areas surveyed for the purpose of implementing institutional controls
May 2004	Annual Site Inspection Report by Parsons
December 2004	Follow-up to Annual Site Inspection by Parsons
September 2005	Second Five-Year Review completed
July 2006	Deed Notice of Capped Facility issued

TABLE 1

CHRONOLOGY OF SITE EVENTS
BAILEY WASTE DISPOSAL SUPERFUND SITE (concluded)

Event	Event
July 2006	2006 Annual Site Inspection Report by Parsons
January 2007	Final Close Out Report issued by EPA
March 2007	Email from property owner to EPA Region 6 regarding Site access changes and cap maintenance issues
July 2007	Direct Final Notice of Deletion of the BWD Superfund Site from the NPL
July 2008	2007 Annual Site Inspection Report by Parsons
July 2009	Task Force Administrator contact for the Site becomes Eve Barron-Wilkerson of Chevron, Inc.
July 2010	Third Five-Year Review completed

3.0 BACKGROUND

This section discusses the Site's physical characteristics, land and resource use near the Site, history of Site contamination, initial response to the Site, and basis for the response.

3.1 PHYSICAL CHARACTERISTICS

The Site is located approximately 3 miles southwest of Bridge City in Orange County, Texas (Figure 1). The Site was originally part of a tidal marsh near the confluence of the Neches River and Sabine Lake. The total Site area includes two rectangular ponds and occupies approximately 280 acres. However, numerous investigations provided the ability to minimize the areas of the Site that required remediation (Tetra Tech EM, Inc. [Tetra Tech] 2005). These areas include: (1) North Marsh Area (approximately 4 acres), (2) North Dike Area (approximately 9 acres), and (3) East Dike Area (approximately 6 acres) (Figure 2).

3.2 LAND AND RESOURCE USE

Two ponds, A and B, were constructed on the property by the landowner, Mr. Joe Bailey, as part of the Bailey Fish Camp in the early 1950s by dredging the marsh and piling the sediments to

form levees which surround the ponds. The fish camp was active until September 1961, when it was destroyed by Hurricane Carla, which introduced saline waters into the ponds, killing the freshwater fish (Tetra Tech 2005).

Mr. Bailey operated the Site pursuant to his ownership and leasehold interests from the early 1950s through April 1971. Following Hurricane Carla, Mr. Bailey allowed the disposal of industrial and municipal waste within the levees along the north and east margins of Pond A (the North Dike Area and the East Dike Area, respectively). In addition to the waste located within the North Dike Area (which includes waste contained in Pits A-l, A-2, A-3, and B) and East Dike Area, waste was also present in the North Marsh Area. Waste disposal operations at the Site ceased in 1971 and the Site was purchased by Gulf State Utilities (Tetra Tech 2005).

Mr. Rodney Townsend and Debra Townsend currently own the property where the BWD is located. Mr. Townsend formerly managed the property as a Texas Prairie Wetlands Project in cooperation with the Texas Parks & Wildlife, Ducks Unlimited, the U.S Department of Agriculture–Natural Resources Conservation Service, and the U.S. Fish and Wildlife Service (Tetra Tech 2005). However, during the course of this third five-year review, it was determined that this is no longer the case.

The Site is situated in a sparsely populated marsh area surrounded by primarily industrial land use. A site layout map is provided as Figure 2.

3.3 HISTORY OF CONTAMINATION

An RI was conducted in 1987 that consisted of a surface and subsurface field investigation to assess the distribution of waste materials and to evaluate the potential for the migration of chemical constituents away from the waste locations outlined above. The RI identified contaminants such as ethylbenzene, styrene, benzene, chlorinated hydrocarbons and polynuclear aromatic hydrocarbons, and industrial wastes and debris (Tetra Tech 2005).

3.4 INITIAL RESPONSE

Based on the results from preliminary assessments, the Site was placed on the NPL in 1986, with the Texas Water Commission as the lead agency. The Texas Water Commission initiated RI/FS activities at the Site to determine the nature and extent of the contamination. After the RI was completed, EPA took over as the lead agency (EPA 1996, Tetra Tech 2005). Under the terms of an administrative order on consent, a group of PRPs conducted an FS. Parsons completed the FS in April 1988. Prior to the selection of the remedy, EPA provided members of the public, including the PRPs, an opportunity to comment on the RI, FS, and the preferred alternative for cleanup. EPA selected an *in situ* stabilization and capping remedy and issued the ROD for the entire Site in June 1988 (EPA 1988). Pursuant to Section 122 of CERCLA, EPA issued special notice letters to the PRPs in July 1988 providing them an opportunity to enter into an agreement to perform the RA. On 30 September 1988, the BSSC submitted to EPA its "Good Faith Offer." As a result, an agreement in principle to conduct the RA was reached. This agreement provided that the BSSC, as defined in the 1989 Consent Decree, would carry out the remedy selected by EPA, and that EPA would reimburse the BSSC for a portion of the costs to implement the remedy.

3.5 BASIS FOR TAKING ACTION

Based on the data collected during the RI, it was determined that hazardous substances could be released from the Site that could endanger public health, welfare, or the environment. The most significant risks to human health and the environment included the following:

1. ***Direct Contact***—Many of the organic compounds and heavy metals found on the Site have been determined to be carcinogens. Absorption through the skin or other routes of inadvertent ingestion therefore poses potential health risks.

2. ***Air Emissions***—Consisting of volatile organic compounds that may pose potential health threats.

3. ***Surface Waters***—Waste migrated into the marsh, which contained organic compounds and heavy metals.

4. ***Ground Water***—Shallow ground water directly beneath the waste was contaminated with organic compounds and heavy metals. Given that the area is subject to tidal flow (i.e., significant daily flow in and out of the area), ground water discharge to surface water has not been found to be an issue.

HLA completed the original remedy remedial design in November 1991. Chemical Waste Management was contracted as the remediation contractor, and mobilized to the Site in September 1992 to implement the original remedy. Because of demonstrated difficulties in achieving the project's *in situ* stabilization specifications and the fact that successful implementation of the original remedy would, if possible at all, be significantly more difficult, more time-consuming, and more costly to implement than was contemplated at the time the original ROD was issued (EPA 1996), EPA requested that the BSSC conduct an FFS. FFS activities commenced in June 1995 and were completed in October 1996. Based on the conclusions presented in the FFS, an Amended ROD (EPA 1996) was completed in December 1996, and the revised RA, which consisted of offsite disposal of the most problematic (mobile) waste, consolidation of the remaining waste, and capping, was completed in August 1997. In September 1998, EPA issued the Preliminary Close Out Report. The report stated that the remedy had been constructed in accordance with the remedial design plans and specifications and that the remedy was operational and functional (EPA 1998).

4.0 REMEDIAL ACTIONS

This section discusses the selected remedy, remedy implementation, operation and maintenance (O&M) activities, and O&M costs.

4.1 SELECTED REMEDY

According to the ROD (EPA 1988), the selected remedy for soil was to consolidate and stabilize the waste to prevent human contact and future migration. Affected sediments were to be relocated from the marsh and drainage channel, the drum disposal area, and pit A-3 to the Waste Channel. Additionally, the Waste Channel and the area east of Pond A were to be stabilized. According to the RA Statement of Work (Appendix E of the 1989 Consent Decree), the

objectives of the RA were as follows:

1. Minimize the potential for waste migration
2. Protect human health and the environment
3. Prevent future contamination of surface water and ground water
4. Minimize the potential short-term air emissions resulting from remedial activities.

However, the selected remedy was technically not achievable, and a ROD Amendment was issued (EPA 1996). Details regarding the initial and amended remedies are discussed in further detail below. The major components of the amended soil remedy included waste consolidation within the East Dike Area and North Dike Area, grading of waste areas to provide a mild slope in order to facilitate stormwater runoff, and construction of a lightweight, composite cap (EPA 1996).

The original ROD for the Site (EPA 1988) did not contain a ground water remedy, as the RI concluded that the Site had no impact on drinking water, and "in the unlikely event that site constituents were to migrate via a ground water pathway, it would take more than 800 years for them to reach potable ground water. . . [and] shallow ground water beneath and adjacent to the site is saline and not suitable for human consumption" (EPA 1996). Moreover, the area is subject to tidal flow (i.e., significant daily flow in and out of the area), so ground water discharge to surface water has not been found to be an issue. The major components of the amended ground water remedy included no long-term ground water treatment, but in the short-term (i.e., during construction of the cap), a "consolidation water collection layer [was installed] to intercept and remove ground water that rises due to the consolidation of the waste" (EPA 1996). The collected water was then pumped to a wastewater holding tank, treated to the discharge limits in effect during the remedy implementation, and discharged. The location of the wastewater treatment system containment area is shown in Figure 2.

4.2 REMEDY IMPLEMENTATION

The RA was conducted in three phases: (1) implementation of some components of the original remedy, (2) the Interim RA (mainly remediation of the North Marsh Area and Pit B), and (3) the

Final Revised RA. Each phase is described below.

Phase 1: Implementation of Original Remedy

According to the ROD (EPA 1988), the original remedy consisted of the following three components:

1. Consolidation of affected sediments from the marsh, drainage channel, drum disposal, and Pit A-3 sectors into the Waste Channel (North Dike Area) sector
2. *In situ* stabilization of the waste in the Waste Channel sector and the sector east of Pond A (East Dike Area)
3. Construction of a clay cap on top of the stabilized waste.

HLA performed the remedial design and construction oversight (Tetra Tech 2005). After numerous *in situ* stabilization attempts, subsequent investigations, and a stabilization field pilot study, it was determined that the waste stabilization performance standards established in the ROD and the remedial design would, if possible at all, be significantly more difficult, more time-consuming, and more costly to implement than was contemplated at the time the original ROD was issued (EPA 1996). Due to these difficulties, as outlined in the 1996 EPA Amended ROD, implementation of the original remedy was not completed. However, the following components of the original remedy were accomplished during its limited implementation (Tetra Tech 2005):

1. Waste/soil interface evaluation
2. Consolidation and relocation of shallow wastes within the East Dike Area
3. Construction of clay dikes around the East Dike Area
4. Construction of access roads and support lay-down area
5. Stabilization of approximately one-third of the East Dike Area on the southern end
6. South drum disposal area remediation
7. Closure of wells and piezometers

8. Construction of a wastewater treatment plant to treat potentially contaminated water generated during the construction operations, including decontamination water, stormwater from active areas, and ground water from dewatering operations

9. Air monitoring to ensure action levels onsite were not exceeded.

Phase II: Interim Remedial Action

GeoSyntec conducted the Interim Remedial Design during the FFS (Tetra Tech 2005). The Interim RAs taken at the Site are discussed in an Explanation of Significant Differences dated 8 February 1996, and another Explanation of Significant Differences dated 1 May 1998. According to the *Remedial Action Report for the Bailey Superfund Site* (GeoSyntec and Parsons 1997), the following activities were accomplished during the Interim RA:

1. Excavation of waste and affected sediments from the North Marsh Area and Pit B and transportation of this material to an offsite industrial landfill for solidification and disposal

2. Excavation and onsite relocation of waste and affected sediments from pits A-1, A-2, and A-3

3. Verification (to a visually clean performance standard) that waste and affected sediments from the drainage channel and the south drum disposal area were removed during the original remedy

4. Waste and affected sediment relocation from the drum disposal area located on the North Dike Area to the East Dike Area

5. Placement of interim soil cover over the south portion of the East Dike Area, which had waste material exposed (active area)

6. Closure of an existing water supply well onsite

7. Air monitoring during intrusive activities to ensure that onsite action levels were not exceeded.

Project record drawings of the Modified North Marsh Waste Remediation, Pit B Waste Removal, and East Dike Area Interim Closure are presented in Part 2 of Appendix A of the *Remedial Action Report for the Bailey Superfund Site* (GeoSyntec and Parsons 1997).

Phase III: Revised Remedial Action

The Revised RA was developed as a result of the FFS (Tetra Tech 2005). The ROD was amended in December 1996 (EPA 1996) consistent with the conclusions of the FFS. The amended ROD replaced the *in situ* stabilization component of the original remedy with lightweight composite caps over the current North Dike and East Dike areas of the Site. According to the *Remedial Action Report for the Bailey Superfund Site* (GeoSyntec and Parsons 1997), the major activities performed during the revised RA are summarized below:

1. Relocation and consolidation of surface waste from the south edge of the North Dike Area to a location within the limits of the area to be capped
2. Relocation and consolidation of bulk waste from the area adjacent to the former Pit B area to a location within the limits of the area to be capped
3. Installation of a water collection system to intercept and remove ground water that was elevated in the short term (i.e., during construction of the cap) due to consolidation of the waste (this water was taken offsite for disposal)
4. Construction of a lightweight composite cap over the East and North Dike Areas
5. Installation of riprap along the cap perimeter for erosion and scour protection
6. Installation of stormwater management controls to route stormwater runoff from disturbed areas during construction to the treatment system, and to divert stormwater runoff from inactive or completed areas of the Site away from the active areas of the Site
7. Construction of maintenance roads
8. Air monitoring during intrusive activities to ensure action levels on Site were not exceeded
9. Installation of a passive gas venting system on both the North and East Dike Areas.

The lightweight composite cap consists of:

- A minimum of 12-inches of compacted clay soils over the waste material;
- Layer of geosynthetic clay liner material;

- High density polyethylene geomembrane;
- Geocomposite drainage layer;
- A minimum of 12-inches protective cover soils; and
- A six foot wide gas vent layer beneath the geomembrane liner with gas vents.

The composition of the cap eliminates the exposure pathway for ecological biota. Photographs taken during the Interim RA and the Revised RA showing the phases of construction work were presented in the Second Five-Year Review for the Site (Tetra Tech 2005), and project Record Drawings of the Revised RA are presented in Part 3 of Appendix A of the *Remedial Action Report for the Bailey Superfund Site* (GeoSyntec and Parsons 1997).

4.3 OPERATION AND MAINTENANCE

The BSSC agreed to perform the remedies in the original and amended ROD pursuant to a judicial consent decree. The long-term effectiveness and permanence of the remedy, as outlined in the amended ROD, will be achieved by maintaining the integrity of the cap through efforts targeting the prevention of desiccation or settlement cracking, penetration by plant roots, or erosion. The maintenance and monitoring requirements to be completed by the BSSC are outlined in the EPA-approved Final IMMP (Parsons and GeoSyntec 1997). The maintenance and monitoring program for the Site includes site inspections, site maintenance, and submission of regularly scheduled reports to the EPA. Quarterly site inspections were scheduled for the first year after completion of the revised RA (August 1997 – July 1998), while in years 2 through 5 (August 1998 – July 2002), this frequency was changed to an annual event. In years 6 through 10 (August 2002 – July 2007), the site inspection frequency reverted to 3 events in 5 years. Site inspections are scheduled for once every 5 years for years 11 through 30 (beginning August 2007) after completion of the revised RA (Parsons and GeoSyntec 1997). According to the O&M plan schedule, four inspections were performed between August 2002 and July 2007, and one inspection was performed between August 2007 and the date of this review. These inspections satisfy the current requirements of the IMMP (Parsons and GeoSyntec 1997). The Second Five-Year Review (Tetra Tech 2005) discussed results for inspections performed in the

years 2000, 2001, 2002, 2003, and 2004, with the last inspection being performed in May 2004. EA has reviewed two inspection reports for May 2006 and December 2007, which apply to this review period. To EA's knowledge, no site inspection reports have been submitted for the Site since December 2007. The site inspection and maintenance schedule is shown in Table 2.

TABLE 2

SITE INSPECTION AND MAINTENANCE SCHEDULE FOR THE THIRD FIVE-YEAR REVIEW

Activity	Description of Work	Frequency of Performance	
		Years 6 to 10 (August 2002 to July 2007)	Years 11 to 30 (beginning August 2007)
Inspection of site	Inspector walks the site looking for signs of deterioration	3 times in 5 years	1 time in 5 years
	Short visits to check site security and after-storm inspections	40 times in 5 years (or as needed)	40 times in 5 years (or as needed)
Grounds maintenance	Mow grass growing on the capped areas	20/5 years	20/5 years
	Erosion repair	3/5 years (or as needed)	3/5 years (or as needed)
Fence and sign repair	Repair fences and gates on the property line Repair posted signs around the property Remove vegetation obstructing signs	2/5 years (or as needed)	3/5 years (or as needed)
Bridge maintenance	Repair or replace bridge decking and handrails	3/5 years	2/5 years
	Engineer's certification	1/5 years or as needed	1/5 years or as needed
Road maintenance	Repair final access roads	3/5 years (or as needed)	2/5 years (or as needed)
Report submittal	A report detailing the observations and maintenance work done on the site	3/5 years (years 6 through 11)	1/5 years
Oversight of contractor	Manage subcontractor, provide quality control, report to BSSC	As required throughout the year	As required throughout the year

NOTE: Adapted from the *Final Inspection, Maintenance, and Monitoring Plan, Bailey Superfund Site, Orange County Texas* (Parsons and GeoSyntec 1997).

Maintenance

Maintenance of the North Dike and East Dike Caps generally consists of quarterly mowing, minor erosion repair of the caps, side slopes and access roads, and maintenance of the access

controls, including the perimeter fence and warning signs. Contractors for the BSSC conduct these maintenance activities and submit inspection reports to EPA. Dates and noted major observations from the O&M inspection reports from 2006 and 2007 are as follows (results from the 2010 site inspection are discussed above):

1. ***May 2006***—The sign located on the back gate of the East Dike was missing and required replacement.

2. ***May 2006***—Limited vegetative cover was noted along the south end of the East Dike. This was noted as an issue possibly related to increased clay content in this area.

3. ***May 2006***—Erosion control initiated – in an area approximately 300 feet long along the northern edge of the North Dike Cap between the third and fifth gas vents, hay bales have been placed along the edge of the vegetation.

4. ***May 2006***—Animal activity noted – minor, shallow tunnels caused by burrowing animals were noted on the top of the North and East Dike Cap Areas. No evidence of damage to the underlying geosynthetic material was noted as a result of these burrows.

5. ***May 2006***—The culvert at the end of the East Dike Cap was removed by the property owner. This action did not negatively impact the East Dike Area.

6. ***July 2007***—An observable depression was noted on the East Dike Cap south of the fourth gas vent; this area contained standing water to a depth capable of submerging field boots to above the soles.

7. ***December 2007***—It was noted that the transition portion of the road-to-bridge gap has weathered and it may need repairs in the future as this bridge is necessary for Site access.

8. ***December 2007***—Erosion control continued – in an area approximately 300 feet long along the northern edge of the North Dike Cap between the third and fifth gas vents, hay bales have been placed along the edge of the vegetation.

9. ***December 2007***—Animal activity noted – Minor, shallow tunnels caused by burrowing animals were noted on the top of the North and East Dike Cap Areas. No evidence of damage to the underlying geosynthetic material was noted as a result of these burrows.

10. ***December 2007***—An area between the fourth gas vent and the riprap on the North Dike Cap appeared to "have a steeper slope toward the channel on the north side of that cap…indicating a possible area of settlement" (Parsons 2008).

4.4 OPERATION AND MAINTENANCE COST

O&M costs for the Site include the following:

- Quarterly mowing, maintenance of the caps, fence and sign repair, bridge maintenance, road maintenance, and contractor oversight
- Annual site inspections and reporting
- Additional labor costs (outside normal operating conditions).

Table 3 provides the approximate costs for the years stated. Total costs were provided by Parsons and by Munsch, Hardt, Kopf, & Harr, P.C.

TABLE 3

ANNUAL OPERATION AND MAINTENANCE COSTS
BAILEY WASTE DISPOSAL SUPERFUND SITE

Year	Parsons Engineering Science, Inc.[1]	Munsch, Hardt, Kopf, & Harr, P.C.[2]	Total Cost Rounded to Nearest $1,000
2005	$24,000	--	$24,000
2006	$24,000	--	$24,000
2007	$8,000	--	$8,000
2008	$7,000	--	$7,000
2009	$29,000	$29,000	$58,000

NOTE: 1 – costs provided by Parsons Engineering Science, Inc.
2 – costs provided by Munsch, Hardt, Kopf, & Harr, P.C.

5.0 PROGRESS SINCE THE SECOND FIVE-YEAR REVIEW

The purpose of this third five-year review was to determine whether the selected remedy for the Site continues to protect human health and the environment. This review was conducted from May to July 2010, and its findings and conclusions are documented in this report. The second five-year review of the RA was signed on 28 September 2005; this established the third five-year review period of from 28 September 2005 to 28 September 2010. The scheduled date for the fourth five-year report is September 2015.

5.1 PROTECTIVENESS STATEMENT FROM SECOND FIVE-YEAR REVIEW

The Second Five-Year Review Report (Tetra Tech 2005) concluded that based on the information available during the second five-year review, the selected remedy for the Site appeared to be performing as intended. Additionally, the RAs at the Site were found to be protective of human health and the environment, assuming the actions detailed in the Second Five-Year Review were taken. The caps were found to be effectively containing contaminants by preventing infiltration of rain water and preventing direct contact with contaminated soils.

5.2 SECOND FIVE-YEAR REVIEW RECOMMENDATIONS AND FOLLOW-UP ACTIONS

The Second Five-Year Review Report (Tetra Tech 2005) recommended the following follow-up actions:

- Monitor areas of erosion and place hay bales in areas experiencing sediment loss. In the areas of exposed geotextile fabric, cover with top soil and reseed.
- Remove burrowing animals and repair burrowed cap areas. If exposed, inspect the geotextile fabric for integrity and then backfill tunnels with a competent backfill material.
- If a prolonged drought continues throughout the summer, BSSC should consider watering the landfill caps in order to promote vegetative growth and minimize desiccation cracking.
- Institutional controls that would help ensure protectiveness for the property in the long term were being pursued by EPA through the TCEQ Texas Risk Reduction Rules (§350. 111) at the time of the Second Five-Year Review.
- Properly dispose of the debris pile to eliminate any nuisances that may be associated with it.

5.3 STATUS OF RECOMMENDED ACTIONS

This section describes the current status of implementation of the recommendations included in the second five-year review (Tetra Tech 2005) as follows:

- Hay bale placement was noted in the 2006 and 2007 site inspection reports (Parsons 2006, 2008); and, according to these reports, the Site was seeded and fertilized in December 2005 and December 2006.
- After Hurricane Ike in 2008, no animals have been noted creating burrows onsite. Inspection reports from 2006 and 2007 noted that animal burrows were filled when encountered (Parsons 2006, 2008).
- Desiccation cracks continue to be an issue onsite as a result of below average rainfall in the area.
- In July 2006, Deed Notices were filed with the Orange County Clerk in Orange, Texas. These notices address a 7.836-acre capped tract owned by R&R Recreation Inc. (North Dike Area) and a 7.576-acre capped tract owned by Leslie L. Appelt (East Dike Area).
- The debris pile was noted as removed during the May 2010 site inspection.

6.0 FIVE-YEAR REVIEW PROCESS

This section presents the process and findings of the third five-year review. Specifically, this section presents the findings of surveys; a site inspection; an applicable or relevant and appropriate requirements (ARARs) review; and a data review.

6.1 ADMINISTRATIVE COMPONENTS

The third five-year review team was lead by Mr. Chris Villarreal of the EPA (Remedial Project Manager) with participation from Ms. Luda Voskov, TCEQ Project Manager, and field support from Mr. Dean Perkins, the TCEQ Tyler, Texas, office. Mr. Gary Desselle and Ms. April Ballweg, the representatives from EA, assisted in the review process.

In March 2010, the review team established the review schedule, which included the following components:

- Community Involvement
- Document Review
- Data Review
- ARAR Review
- Site Inspection
- Site Interviews
- Five-Year Review Report Development and Review.

6.2 COMMUNITY INVOLVEMENT

Upon signature, the Third Five-Year Review Report will be placed in the information repositories for the Site; the TCEQ office in Austin, Texas; and the EPA Region 6 office in Dallas, Texas. A notice will then be published in the local newspaper to summarize the findings of the review and announce the availability of the report at the information repositories.

6.3 DOCUMENT REVIEW

This third five-year review for the Site included a review of relevant Site documents, including deed notices, annual site inspections reports, the Final Close Out report, the Direct Final Notice of Deletion of the BWD Site from the NPL, and other ancillary documents. The BWD Site has been removed from the NPL, as promulgated by EPA (EPA 2007b). Additionally, a "Deed Notice of Capped Facility" was issued for the property in Texas Congressional District 8; the property was described as "Capped 7.836-acre tract on privately owned property as recorded in Volume 1107, Page 890 of Orange County Deed Records" and "Capped 7.576-acre tract on privately owned property as recorded in Volume 719, Page 972 of Orange County Deed Records" (EPA 2006). The complete list of documents reviewed during this third five-year review is provided in Attachment 1.

6.4 DATA REVIEW

A review of the previous two inspection reports from 2006 and 2007 indicates that the procedures outlined in the IMMP have ensured that the RA for the Site as designed and as constructed is being maintained. However, this Third Five-Year Review has identified several items requiring action to maintain the protectiveness of the Site remedy. There is no method established in the IMMP for long-term assessment of the RA objective of preventing future contamination of surface water or ground water. No data are being collected as part of the O&M requirements. It was determined in the December 1996 ROD Amendment that the 25-35 feet of "very soft gray clay to silty clay" underlying and surrounding the cap provides adequate containment against vertical and lateral migration (EPA 1996).

Information on the Site activities was summarized in the following reports:

- "Final 2006 Annual Site Inspection Report, Bailey Superfund Site" (Parsons 2006)
- "Final 2007 Annual Site Inspection Report, Bailey Superfund Site" (Parsons 2008).

6.5 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENT REVIEW

The original 1988 ROD and the amended 1996 ROD identified the following ARARs for the Site RA:

- 40 Code of Federal Regulations (CFR) 264.18(b) (Resource Conservation and Recovery Act [RCRA])—Facilities in the 100-year flood plain must be designed, constructed, operated, and maintained to avoid washouts.
- Executive Order 11988 (Flood Plain Management)—Action taken must avoid adverse effects and minimize potential harm to the surrounding area.
- 40 CFR 246 (RCRA)—Constructions requirements for hazardous waste storage facilities.

- Texas Surface Water Quality Standards—30 Texas Administrative Code, Chapter 307, for establishing surface water discharge criteria.

The amended ROD identified the following criteria or guidance to be considered (TBC):

- EPA's Design and Construction of RCRA/CERCLA Final Covers, May 1991, for the design and construction of the lightweight composite cap.

One of the requirements of a five-year review is to determine if there are any new requirements that may pertain to the Site. No newly promulgated requirements that pertain to the Site were identified.

6.6 SITE INSPECTION

A site inspection was conducted on 18 May 2010, to assess the condition of the BWD Site and the measures employed to protect human health and the environment from the contaminants still present at the Site. Attendees included: (1) Chris Villarreal of the EPA; (2) Dean Perkins of the TCEQ; (3) April Ballweg of EA; and (4) Rodney Townsend, the Site owner. The site inspection checklist is included in Attachment 2, site survey forms are provided in Attachment 3, and a photographic log of the inspection is included in Attachment 4.

No evidence of contamination was visible at the Site. The Site's general appearance was good, and the Site appeared to be well maintained. The inspection team investigated the perimeter and tops of the North Dike and East Dike Caps, the perimeter roads, vent caps, and the access controls, including the fences, warning signs, and gates.

Site vegetation showed stress from dry conditions, and the North and East Dike Caps showed minor desiccation cracking. Minor erosion of riprap was noted as a result of Hurricane Ike in 2008. It was noted that no new animal burrows have been observed since the 2008 hurricane. Vegetation was noted as growing within the riprap of both the North and East Dike Caps, and exposed geotextile material was noted along the top of the North Dike Cap. Debris was noted within the riprap of both dike caps. Ruts were discovered between the third and fourth vents

along the East Dike Cap, and a low area/depression was observed along this dike cap near the fourth vent. An additional depression was found between the "W1" and "W2" vents along the North Dike, near fire ant mounds in this area.

The roads and vent caps were found to be in good condition. The fence located to the north of the main entrance gate was found to be corroded and the integrity of this fence has been compromised. Warning signs located on the south side of the North Dike were found to be damaged and in need of repair, and the sign near the third vent along the North Dike was found to be missing.

Finally, the landowner directed the site inspection team to the Site access bridge, where he has noted saltwater on the "I" beams and corrosion around the support structure of the bridge; these issues occurred after Hurricane Ike in 2008, according to the landowner.

6.7 SITE INTERVIEWS

In accordance with the community involvement requirements of the five-year review process, key individuals to be surveyed were identified by the EPA. Contacted individuals included TCEQ, the Site owner, the O&M operator, and the Task Force Administrator (Ms. Eve Barron-Wilkerson). Due to the isolated location of the Site, the general public has not historically provided feedback regarding Site activities. However, on 2 April 2010, an e-mail was received through the National Superfund Redevelopment website from a concerned citizen. A redacted copy of the original e-mail and the response to the concerned citizen's inquiry is incorporated in the questionnaire provided by the EPA Remedial Project Manager, Mr. Chris Villarreal. As of the date of this report, no information was received from Ms. Barron-Wilkerson. Completed survey forms for the following individuals are included in Attachment 3:

- Chris Villarreal, EPA
- Dean Perkins, TCEQ
- Rodney Townsend, Site Landowner

- Doug Wall, O&M Operator, American Remediation Options, Inc.

A continuing and unresolved issue noted by Chris Villarreal was the settlement occurring between the third and fourth air vents on the East Dike.

7.0 TECHNICAL ASSESSMENT

The conclusions presented in this section support the determination that the selected remedy for the Site is currently protective of human health and the environment. EPA Guidance indicates that to assess the protectiveness of a remedy, three questions (Questions A, B, and C) shall be answered.

7.1 QUESTION A: IS THE REMEDY FUNCTIONING AS INTENDED BY THE DECISION DOCUMENTS?

- **RA Performance**—The review of documents, monitoring data, and results of the site inspection indicates that the landfill cover system has been effective in isolating waste and contaminants. As noted above, some minor erosion and tunneling by burrowing animals has occurred on the cap, but it does not affect the performance or integrity of the cover system. No new animal burrows have been noted after Hurricane Ike in 2008 but the preexisting burrows have not been addressed. There is no evidence of wetland deterioration at the Site. Only a minimal amount of settling has been observed. Areas in the cap with sparse vegetation or desiccation cracking should be addressed and will continue to need attention. Overall, the RA continues to be effective.

- **Cost of System and O&M**—O&M costs for fiscal years 2005 through 2010 were not available at the time this report was completed. Current O&M activities (as described in Section 4.3) appear sufficient to maintain the effectiveness of the current remedy.

- **Opportunities for Optimization**—Activities at the Site as mandated in the IMMP (Parsons and GeoSyntec 1997) are already minimal. However, as mentioned above, areas in the cap with sparse vegetation and desiccation cracking will continue to need attention. Also, seeding, fertilizing, and watering the cultivated areas of vegetation combined with erosion protection may be required to minimize future costs and maintenance associated with the landfill caps. The O&M contractor should review the O&M manual and update it as necessary. Prior to implementation, any changes to this manual will have to be approved by EPA. In addition, if actions identified in this Five-Year Review are not addressed in a timely fashion, modifications to the IMMP to require more frequent inspections and inspection reports may be necessary.

- **Early Indicators of Potential Issues**—There is no indication of remedy failure.

- **Implementation of Institutional Controls and Other Measures**—The security fencing around the Site is intact. However, the fence located to the north of the main entrance gate was found to be corroded and the integrity of this fence has been compromised. Warning signs located on the south side of the North Dike were found to be damaged and in need of repair, and the sign near the third vent along the North Dike was found to be missing. Gates remain locked when the Site is unattended and only authorized personnel are provided access to the Site. Warning signs are located at the entrance of each landfill cap prohibiting vehicles from driving on the cap. Institutional controls have been implemented to help prevent exposure to contaminants at concentrations above health-based risk levels that may remain at the Site in the long term and limit activities at or near the Site through a deed notice (EPA 2006).

7.2 QUESTION B: ARE THE ASSUMPTIONS USED AT THE TIME OF REMEDY SELECTION STILL VALID?

- **Changes in Exposure Pathways**—No changes in the Site conditions that affect exposure pathways were identified as part of the five-year review. This is due to several factors. Primarily, there are no current or planned changes in land use. Secondly, no new contaminants, sources, or routes of exposure were identified as part of this five-year review. Additionally, the unique hydrologic features at the Site do not make ground water a medium of concern and ground water is not monitored as part of the RA. The RI concluded that the Site has had no impact on drinking water; and, in the unlikely event that Site constituents were to migrate via a ground water pathway, it would take more than 800 years for them to reach potable ground water. The shallow ground water beneath and adjacent to the Site is saline and not suitable for human consumption. Because the hydrologic conditions indicated that the area is subject to tidal flow (i.e., significant daily flow in and out of the area), ground water discharge to surface water has not been found to be an issue.

- **Changes in Standards, Newly Promulgated Standards, and To-Be-Considered**—This five-year review did not identify any new requirements that would pertain to the Site.

- **Changes in Toxicity and Other Contaminant Characteristics**—The RA relies on containment of contaminants rather than cleanup or removal of contaminants. Therefore, changes in toxicity or other factors for contaminants of concern do not impact the protectiveness of the RA.

- **Changes in Land Use**—There have been no changes in land use that bear on the protectiveness of the selected remedy.

- **New Contaminants and/or Contaminant Sources**—There have been no new contaminants or contaminant sources identified at the Site.

- **Expected Progress Toward Meeting RA Objectives**—The RA objectives relating to isolating wastes and contaminants have been met. Institutional controls, currently in place as a deed notice (EPA 2006), will help prevent exposure to contaminants at concentrations above health-based risk levels that may remain at the Site in the long term and limit activities at or near the Site.

7.3 QUESTION C: HAS ANY OTHER INFORMATION COME TO LIGHT THAT COULD CALL INTO QUESTION THE PROTECTIVENESS OF THE REMEDY?

No other information has been identified that calls into question the current protectiveness of the remedy.

7.4 TECHNICAL ASSESSMENT SUMMARY

According to documents and data reviewed, the site inspections, and interviews, the remedy appears to be functioning as intended by the 1988 ROD (EPA 1988) and the Amended ROD (EPA 1996). There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy. The ARARs cited in the RODs have been met. Because the remedy relies on containment rather than treatment, changes in toxicity factors would not affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

8.0 INSTITUTIONAL CONTROLS

Institutional controls are generally defined as non-engineered instruments such as administrative and legal tools that do not involve construction or physically changing the Site and that help minimize the potential for human exposure to contamination and/or protect the integrity of a remedy by limiting land and/or resource use (EPA 2005). Institutional controls can be used for many reasons including restriction of Site use, modifying behavior, and providing information to individuals (EPA 2000). Institutional controls may include easements, covenants, restrictions or other conditions on deeds, and/or ground water and/or land use restriction documents (EPA 2001). The following sections describe the institutional controls implemented at the Site, the

potential effect of future land use plans on institutional controls, and any plans for changes to Site contamination status.

8.1 TYPES OF INSTITUTIONAL CONTROLS IN PLACE AT THE SITE

Institutional controls that will help ensure protectiveness in the long term were issued by EPA in the form of Deed Notices filed with the Orange County Clerk in Orange, Texas, in July 2006. These notices address a 7.836-acre capped tract owned by R&R Recreation Inc. (North Dike Area) and a 7.576-acre capped tract owned by Leslie L. Appelt (East Dike Area) (EPA 2006).

8.2 EFFECT OF FUTURE LAND USE PLANS ON INSTITUTIONAL CONTOLS

No future land uses have been established or are anticipated for the Site that would require an adjustment to the institutional controls currently being implemented.

8.3 PLANS FOR CHANGES TO SITE CONTAMINATION STATUS

No changes to the status of the contamination at the Site are anticipated.

9.0 ISSUES

This section describes issues associated with the Site that were identified during the third five-year review:

- ***Site Access Bridge*—**Landowner has noted concerns with the integrity of the bridge. After Hurricane Ike in 2008, the landowner has noted saltwater on the "I" beams and rusting around the support structure of the bridge.

- ***Animal Activity*—**An abandoned armadillo burrow was noted along the North Dike Cap between the second and third "W" vents. It should be noted that based on the finding of the five-year review inspection, no new animal burrows appear to have been created since Hurricane Ike in 2008.

- ***Riprap Issues*—**Vegetation is growing within the riprap of both the North and East Dike Caps, desiccation cracks were noted along the tops of both dikes, and exposed

geotextile material was also noted along the top of the North Dike Cap. Debris was also noted within the riprap for both Dike Caps.

- ***Dike Cap Desiccation*—**As a result of dry conditions, patches of sparse vegetation and soil cracks to 4 inches deep were noted in both the North Dike and East Dike Caps.

- ***Site Access Issues*—**Fencing located to the north of the main entrance gate has been corroded and the integrity has been compromised.

- ***Insect Mounds and Cap Depressions*—**Fire ant mounds and a small depression were noted between the "W1" and "W2" vents along the North Dike.

- **East Dike—**Ruts were noted between the third and fourth vents (viewed from north to south). A low area was also noted in this dike near the fourth vent.

- **Warning Signs—**The sign located at the south side of the North Dike has been damaged, and the sign near the third vent along the North Dike is missing.

Table 4 presents a summary of issues identified and if these issues affect current or future remedy protectiveness.

TABLE 4

ISSUES IDENTIFIED
BAILEY WASTE DISPOSAL SUPERFUND SITE

Issue	Affects Current or Future Remedy Protectiveness (Yes/No)
Site Access Bridge	No
Animal Activity	Yes
Riprap Issues	Yes
Dike Cap Desiccation	Yes
Site Access Issues	No
Insect Mounds and Cap Depressions	Yes
East Dike	Yes
Warning Signs	Yes

10.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

This section describes the recommendations and follow-up actions associated with the Site that were identified during the third five-year review:

- Perform bridge maintenance to reduce corrosion. In addition to regular maintenance prescribed in the Final IMMP (Parsons and GeoSyntec 1997), it is recommended that corroded areas be sanded and painted.

- Repair the burrowed cap areas and backfill burrows with a competent backfill material.

- Consider the use of an herbicide to eliminate vegetation from the riprap, or manually remove vegetation during regular site visits. Watering the caps should be considered to promote vegetation growth and minimize desiccation cracking. If exposed, inspect the geotextile fabric for integrity, and remove accumulated debris during regular site visits.

- Consider watering the North Dike and East Dike Caps in times of drought or low rainfall to minimize soil cracking.

- Repair the fencing to the north of the main entrance gate.

- Consider eradication of fire ants along the North Dike. Survey the depression noted in the North Dike during regular site visits to determine if the cap is settling over time. If cap settlement has occurred, bring in and grade general fill to restore the cap grade needed to promote storm water runoff. Seed and fertilize the general fill to promote a vegetative cover.

- Repair ruts noted in the East Dike, and survey the depressions along the East Dikes during regular site visits to determine if the cap is settling over time. If cap settlement has occurred, bring in and grade general fill to restore the cap grade needed to promote storm water runoff. Seed and fertilize the general fill to promote a vegetative cover.

- Repair warning sign at the south side of the North Dike and replace the sign near the third vent along the North Dike.

Table 5 summarizes the recommendations and follow-up actions for the Site.

The Bailey Waste Disposal Site Task Force Administrator – Ms. Eve Wilkerson-Barron, will be provided a copy (via overnight mail) of the Third Five-Year Review with a cover letter which

lists the recommendations and follow-up actions identified during the five-year review. The letter will request that the Bailey Site Settlor's Committee provide the EPA a schedule for completing the identified action items. As noted in the Third Five-Year Review, the recommendations and follow-up action items are to be completed within one year. Upon completion of the action items, the Bailey Site Settlor's Committee will be required to provide written and photographic documentation that the action items were completed. Once this documentation is received, a site visit with representatives of the Bailey Site Settlor's Committee, the site property owner, and the EPA will be conducted to inspect the completed work.

11.0 PROTECTIVENESS STATEMENT

Based on the information available during the third five-year review, the selected remedy for the Site appears to be performing as intended. Because the RAs at the Site are protective of human health and the environment, the remedy for the Site is expected to be protective of human health and the environment assuming the actions detailed in this review are taken. The caps are effectively containing contaminants by preventing infiltration of rainwater and preventing direct contact with contaminated soils. EPA has placed institutional controls of the landfill caps under TCEQ Texas Risk Reduction Rules (§350.111). These institutional controls will help to ensure the long-term protectiveness of the caps.

12.0 NEXT REVIEW

The Site requires ongoing five-year reviews. The next review will be conducted within the next five years, but no later than September 2015.

TABLE 5

RECOMMENDATIONS AND FOLLOW-UP ACTIONS
BAILEY WASTE DISPOSAL SUPERFUND SITE

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Follow-up Actions Affect Long-term Remedy Protectiveness (Yes/No)
Integrity of site access bridge	Perform bridge maintenance to reduce corrosion. In addition to regular maintenance prescribed in the Final IMMP (Parsons and GeoSyntec 1997), it is recommended that corroded areas be sanded and painted.	BSSC	EPA	Within 1 year of submittal of this report	No
Animal activity	Repair the burrowed cap areas and backfill burrows with a competent backfill material.	BSSC	EPA	Within 1 year of submittal of this report	Yes
Riprap issues	Consider the use of an herbicide to eliminate vegetation from the riprap, or manually remove vegetation during regular site visits. Watering the caps should be considered to promote vegetation growth and minimize desiccation cracking. If exposed, inspect the geotextile fabric for integrity, and remove accumulated debris during regular site visits.	BSSC	EPA	Within 1 year of submittal of this report	Yes
Dike cap desiccation	Consider watering the North Dike and East Dike Caps in times of drought or low rainfall to minimize soil cracking.	BSSC	EPA	Within 1 year of submittal of this report	Yes
Site access issues	Repair the fencing to the north of the main entrance gate.	BSSC	EPA	Within 1 year of submittal of this report	No

TABLE 5

RECOMMENDATIONS AND FOLLOW-UP ACTIONS
BAILEY WASTE DISPOSAL SUPERFUND SITE (concluded)

Issue	Recommendations and Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Follow-up Actions Affect Long-term Remedy Protectiveness (Yes/No)
Insect mounds and cap depressions	Consider eradication of fire ants along the North Dike. Survey the depression noted in the North Dike during regular site visits to determine if the cap is settling over time. If cap settlement has occurred, bring in and grade general fill to restore the cap grade needed to promote storm water runoff. Seed and fertilize the general fill to promote a vegetative cover.	BSSC	EPA	Within 1 year of submittal of this report	Yes
East Dike	Repair ruts noted in the East Dike, and survey the depressions along the East Dikes during regular site visits to determine if the cap is settling over time. If cap settlement has occurred, bring in and grade general fill to restore the cap grade to promote storm water runoff. Seed and fertilize the general fill to promote a vegetative cover.	BSSC	EPA	Within 1 year of submittal of this report	Yes
Warning signs	Repair warning sign at the south side of the North Dike and replace the sign near the third vent along the North Dike.	BSSC	EPA	Within 1 year of submittal of this report	Yes

Figures

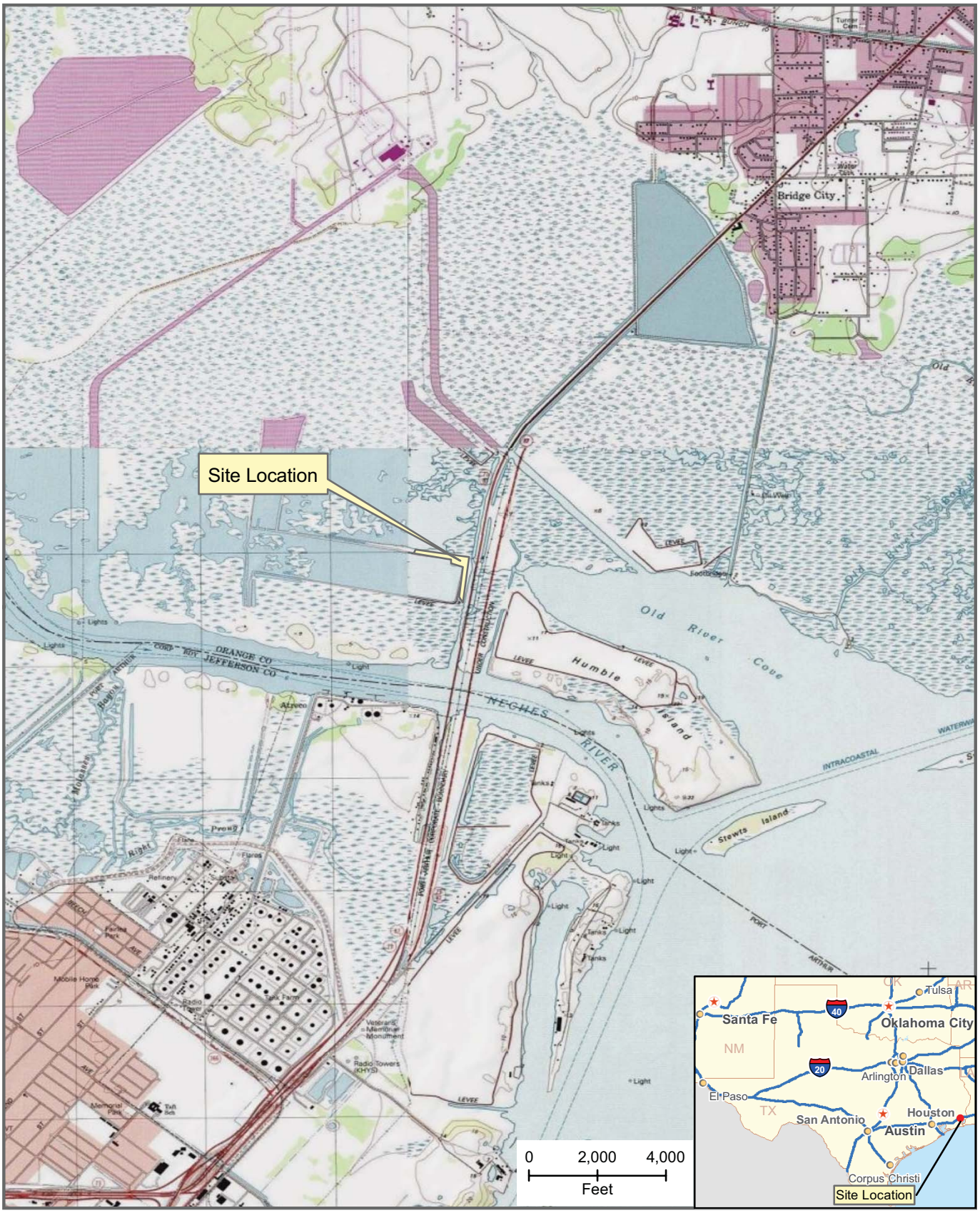
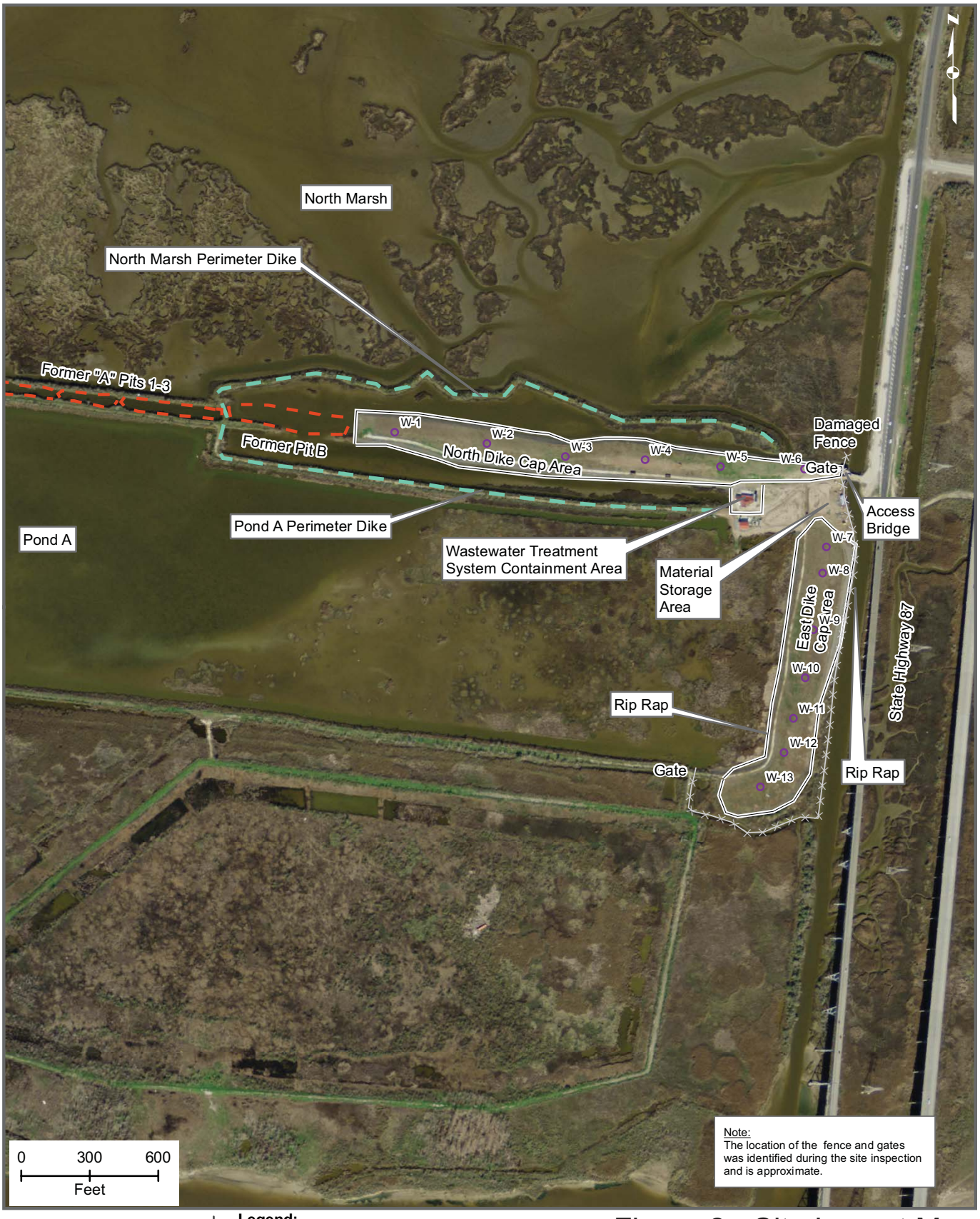


Figure 1 - Site Location Map

Five-Year Review
Bailey Waste Disposal Superfund Site
Orange County, Texas

Source: ESRI Streetmap North America, 2008

2010-06-21 f:\federal\epa\rac iii\0052-bailey waste\gis\mxds\fig01-sitelocation.mxd EA-Dallas jschwertz



Legend:

- Denotes Vent Location
- Cap Boundary
- Fence
- Dike
- Former Pits

Source: Modified from GeoSyntec Consultants, 1997, and Tetra Tech EM, Inc. 2005
Image: 2008-2009 Texas Orthoimagery Program 0.5 meter DOQQ

Figure 2 - Site Layout Map

Five-Year Review
Bailey Waste Disposal Superfund Site
Orange County, Texas

2010-08-06 f:\federal\epa\rac iii\0052-bailey waste\gis\mxds\fig02-sitelayout.mxd EA-Dallas jschwertz

Attachment 1

Documents Reviewed

DOCUMENTS REVIEWED

(United States) Environmental Protection Agency (EPA). 1988. "Record of Decision, Bailey Waste Disposal Site, Orange County, Texas." 28 June.

EPA. 1996. "EPA Superfund Record of Decision Amendment: Bailey Waste Disposal. EPA ED: TXD980864649.OU1. Bridge City, Texas." 16 December.

EPA. 1998. "Preliminary Close Out Report Bailey Waste Disposal Site, Orange County Texas." September.

EPA. 2000. "Institutional Controls: A Site Manager's Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups." EPA 540-F-00-005. September.

EPA. 2001. "Comprehensive Five-Year Review Guidance." EPA 540-R-01-007. June.

EPA. 2005. "Institutional Controls: A Citizen's Guide to Understanding Institutional Controls at Superfund, Brownfields, Federal Facilities, Underground Storage Tank, and Resource Conservation and Recovery Act Cleanups." EPA-540-R-04-003. February.

EPA. 2006. "Deed Notice of Capped Facility." Bailey Waste Superfund Site, Orange County, Texas. Filed with the Orange County County Clerk, Orange, Texas on 27 July. Filed for Record on 2 August.

EPA. 2007a. "Final Close Out Report, Bailey Waste Disposal Superfund Site, Bridge City Texas." January.

EPA. 2007b. "National Priorities List Update, Direct Final Notice of Deletion of the Bailey Waste Disposal Superfund Site from the National Priorities List." July.

EPA. 2010. "Bailey Waste Disposal, EPA ID No. TXD980864649, Site ID: 0602911." On-line Address: http://www.epa.gov/earth1r6/6sf/pdffiles/0602911.pdf. Accessed 16 June 2010. Publication date: 1 April.

GeoSyntec and Parsons Engineering Science, Inc. (Parsons). 1997. "Remedial Action Report for the Bailey Superfund Site, Orange County, Texas, Volume 1." Prepared for the Environmental Protection Agency Region 6. October.

In the United States District Court Eastern District of Texas. 1989. "Consent Decree."

Parsons Engineering, Science, Inc. (Parsons). 2006. "Final 2006 Annual Site Inspection Report, Bailey Superfund Site." July.

DOCUMENTS REVIEWED (concluded)

Parsons. 2008. "Final 2007 Annual Site Inspection Report, Bailey Superfund Site." July.

Parsons and GeoSyntec. 1997. "Final Inspection, Maintenance, and Monitoring Plan, Bailey Superfund Site, Orange County, Texas." September.

Tetra Tech EM, Inc. 2005. "Five-Year Review Report for the Bailey Waste Disposal Site, Orange County, Texas." September.

Attachment 2

Site Inspection Checklist

SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site Name: Bailey Waste Disposal Site	**Date of Inspection:** May 18, 2010
Location and Region: Orange County, Texas	**EPA ID:** TXD980864649
Agency, office, or company leading the five-year review: U.S. Environmental Protection Agency, Region 6	**Weather/temperature:** **77.6**°F to **94.4**°F, southeast wind 0-6 miles per hour, clear with no precipitation.

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☐ Ground water pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other (Monitored natural attenuation)

Attachments: ☒ Inspection team roster attached ☐ Site map attached (Figure 2 of report)

II. INTERVIEWS (Check all that apply)

1. O&M Site Manager Julie Larson (Name) | Project Manager Parsons (Title) | June 22, 2010 (Date)

Interviewed: ☐ by mail ☐ at office ☒ by phone Phone no. 713-871-7164

Problems, suggestions: ☐ Report attached E-mail Julie.Larson@parsons.com

2. O&M Staff Doug Wall (Name) | O&M Operator; ARO (Title) | June 23, 2010 (Date)

Interviewed: ☐ by mail ☐ at office ☒ by phone Phone no. 409-454-0503

Problems, suggestions: ☐ Report attached

3. Local regulatory authorities and response agencies (i.e.; State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.). Fill in all that apply.

Agency Texas Commission on Environmental Quality (TCEQ)

Contact Dean Perkins (Name) | Project Manager (Title) | May 18, 2010 (Date) | 903-535-5175 (Phone no.)

Problems, suggestions: ☒ Report attached Completed Interview/Survey Form

Agency _____

Contact _____ (Name) | _____ (Title) | _____ (Date) | (_____) (Phone no.)

Problems, suggestions: ☐ Report attached _____

4. Other interviews (optional): ☒ Report attached to Five-Year Review Report

Mr. Rodney Townsend, 409-718-6947, 7706 Highway 87, Bridge City, Texas 77611

Mr. Doug Wall, 409-454-0503, American Remediation Options, Inc., Lumberton, Texas

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents

☒ O&M manual (long term monitoring plan)	☐ Readily available	☐ Up to date	☐ N/A
☒ As-built drawings	☐ Readily available	☐ Up to date	☐ N/A
☒ Maintenance logs	☐ Readily available	☐ Up to date	☐ N/A

Remarks: Documentation available at Parsons office, currently in archived files, need identified to review and update the O&M manual, maintenance logs are biannual inspection reports

2. Site-Specific Health and Safety Plan	☒ Readily available	☒ Up to date	☐ N/A
☐ Contingency plan/emergency response plan	☐ Readily available	☐ Up to date	☒ N/A

Remarks: Site-specific health and safety plan updated in 2009

3. O&M and OSHA Training Records	☐ Readily available	☐ Up to date	☐ N/A

Remarks: Need to verify this with Mr. Wall (American Remediation Options [ARO])

4. Permits and Service Agreements

☐ Air discharge permit	☐ Readily available	☐ Up to date	☒ N/A
☐ Effluent discharge	☐ Readily available	☐ Up to date	☒ N/A
☐ Waste disposal, POTW ☐	Readily available	☐ Up to date	☒ N/A
☐ Other permits _____	☐ Readily available	☐ Up to date	☒ N/A

Remarks: _____

5. Gas Generation Records ☐	Readily available	☐ Up to date	☒ N/A
6. Settlement Monument Records	☐ Readily available	☐ Up to date	☒ N/A
7. Ground Water Monitoring Records	☐ Readily available	☐ Up to date	☒ N/A
8. Leachate Extraction Records	☐ Readily available	☐ Up to date	☒ N/A

9. Discharge Compliance Records

☐ Air	☐ Readily available	☐ Up to date	☒ N/A
☐ Water (effluent) ☐	Readily available	☐ Up to date	☒ N/A

Remarks: _____

10. Daily Access/Security Logs	☐ Readily available	☐ Up to date	☒ N/A

Remarks: Land owner has 24-hour surveillance with video monitors located around perimeter of on-site structure, there is not a daily access log.

IV. O&M COSTS

1. O&M Organization

☐ State in-house ☐ Contractor for State ☐ PRP in-house

☐ Contractor for PRP ☒ Other Bailey Site Settlers Committee through the legal firm Munsch, Hardt, Kopf and Harr, P.C. Point of contact: Mary Koks, 713-222-4030

2. O&M Cost Records

☒ Readily available ☒ Up to date ☒ Funding mechanism/agreement in place

☐ Original O&M cost estimate ☐ Breakdown attached

Total annual cost by year for review period, if available

	Date		Date	Total Cost	Total Cost	
From	01/01/05	to	12/31/05	$23,675[1]	- ☐	Breakdown attached
From	01/01/06	to	12/31/06	$23,590[1]	- ☐	Breakdown attached
From	01/01/07	to	12/31/07	$8,172[1]	- ☐	Breakdown attached
From	01/01/08	to	12/31/08	$7,327[1]	- ☐	Breakdown attached
From	01/01/09	to	12/31/09	$29,273[1]	$28,543[2] ☐	Breakdown attached

[1] Costs provided by Parsons

[2] Costs provided by Munsch, Hardt, Kopf, & Harr, P.C.

3. Unanticipated or Unusually High O&M Costs During Review Period

Elevated costs were incurred in 2009 as a result of Hurricane Ike repairs. The hurricane occurred in 2008 but Parson's accounting system did not invoice the associated charges until 2009.

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. Fencing damaged ☒ Location shown on site map ☐ Gates secured ☐ N/A

Remarks: Small section of fencing north of the main entry gates was noted to be in disrepair. This section is located over a water channel, has rusted away at the bottom and requires replacement.

B. Other Access Restrictions

1. Signs and other security measures ☒ Location shown on site map ☐ N/A

Remarks: Signs located around perimeter of caps in the water and adjacent to the access roads. Land owner noted more signs are needed around the perimeter and some signs were in disrepair (pushed over) as noted during the site visit. Fencing north of the main gates is in need of repair/replacement.

C. Institutional Controls

1. Implementation and enforcement

Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A

Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A

Type of monitoring (e.g., self-reporting, drive by) Land owner keeps trespassers from accessing site.

Frequency Daily, land owner lives adjacent to the caps.

Responsible party/agency Environmental Protection Agency – Placed deed restrictions at Orange County Courthouse with the County Clerk's Office

Contact Chris Villarreal (Name) Remedial Project Manager (Title) July 27, 2006 (Date) 214-665-6758 (Phone no.)

Reporting is up-to-date ☒ Yes ☐ No ☐ N/A

Reports are verified by the lead agency ☒ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☒ Yes ☐ No ☐ N/A

Violations have been reported ☐ Yes ☒ No ☐ N/A

Other problems or suggestions: ☒ Report attached

A copy of the EPA Affidavit submitted to the Orange County Clerk's Office and filed on 8/2/06 is provided as an attachment to the Five-Year Review Report.

2. Adequacy ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks:

D. General

1. Vandalism/trespassing ☐ Location shown on site map ☒ No vandalism evident

Remarks:

2. Land use changes onsite ☒ N/A

Remarks:

3. Land use changes offsite ☒ N/A

Remarks:

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. Roads damaged ☐ Location shown on site map ☒ Roads adequate ☐ N/A

Remarks:

B. Other Site Conditions

Remarks: See section XI. Overall Observations

VII. LANDFILL COVERS

☒ Applicable ☐ N/A

A. Landfill Surface

1. Settlement (Low spots) ☒ Location shown on site map ☒ Settlement not evident
Areal extent _____ Depth _____
Remarks: Survey of settlement area provided.

2. Cracks ☐ Location shown on site map ☐ Cracking not evident
Lengths Varies Widths 0.5 to 1 inch approximate Depth down to 6 inches
Remarks: Cracks in both caps noted due to dry weather conditions.

3. Erosion ☐ Location shown on site map ☐ Erosion not evident
Areal extent Along top of riprap Depth _____
Remarks: Geotextile exposed, condition noted after Hurricane Ike

4. Holes ☐ Location shown on site map ☐ Holes not evident
Areal extent _____ Depth _____
Remarks: Abandoned hole (animal burrow) noted on north cap

5. Vegetative Cover ☒ Grass ☐ Cover properly established ☐ No signs of stress
☐ Trees/Shrubs (indicate size and locations on a diagram)
Remarks: No trees or shrubs noted on top of cap, trees noted growing in various areas of riprap
Vegetative cover stressed due to lack of rain (dry conditions)

6. Alternative Cover (armored rock, concrete, etc.) ☐ N/A
Remarks: In good shape with the exception of vegetative growth of trees and/or shrubs

7. Bulges ☐ Location shown on site map ☒ Bulges not evident
Areal extent _____ Depth _____
Remarks:

8. Wet Areas/Water Damage ☐ Wet areas/water damage not evident

☐ Wet areas	☐ Location shown on site map	☐ Areal extent _____
☒ Ponding	☒ Location shown on site map	☐ Areal extent _____
☐ Seeps	☐ Location shown on site map	☐ Areal extent _____
☐ Soft subgrade	☐ Location shown on site map	☐ Areal extent _____

Remarks: Settlement area noted on East Dike Cap, surveys of area provided

9. Slope Instability ☐ Slides ☐ Location shown on site map
☒ No evidence of slope instability Areal extent _____
Remarks:

B. Benches ☐ Applicable ☒ N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. Flows Bypass Bench ☐ Location shown on site map ☒ N/A

Remarks: _____

2. Bench Breached ☐ Location shown on site map ☒ N/A

Remarks: _____

3. Bench Overtopped ☐ Location shown on site map ☒ N/A

Remarks: _____

C. Letdown Channels ☐ Applicable ☒ N/A

(Channel lined with erosion control mats, rip rap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. Settlement ☐ Location shown on site map ☒ N/A

Areal extent _____ Depth _____

Remarks: _____

2. Material Degradation ☐ Location shown on site map ☒ N/A

Material type _____ Areal extent _____

Remarks: _____

3. Erosion ☐ Location shown on site map ☒ N/A

Areal extent _____ Depth _____

Remarks: _____

4. Undercutting ☐ Location shown on site map ☒ N/A

Areal extent _____ Depth _____

Remarks: _____

5. Obstructions Type _____

☐ No obstructions ☒ N/A

Areal extent _____ Size _____

Remarks: _____

6. Excessive Vegetative Growth Type _____

☐ No evidence of excessive growth ☒ N/A

☐ Location shown on site map Areal extent _____

Remarks: _____

D. Cover Penetrations ☒ Applicable ☐ N/A

1. Gas Vents ☐ Active ☒ Passive
☒ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☒ Good condition
☐ Evidence of leakage at penetration ☐ Needs O&M ☐ N/A
Remarks: Appeared to be in good working order with insect screens in place.

2. Gas Monitoring Probes
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs O&M ☒ N/A
Remarks:

3. Monitoring Wells (within surface area of landfill)
☐ Evidence of leakage at penetration ☐ Needs O&M ☒ N/A
Remarks:

4. Leachate Extraction Wells
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs O&M ☒ N/A
Remarks:

5. Settlement Monuments ☐ Located ☐ Routinely surveyed ☒ N/A
Remarks:

E. Gas Collection and Treatment ☐ Applicable ☒ N/A

1. Gas Treatment Facilities
☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
☐ Good condition ☐ Needs O&M ☒ N/A
Remarks:

2. Gas Collection Wells, Manifolds, and Piping ☐ Good condition ☒ N/A
Remarks:

3. Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings)
☐ Good condition ☐ Needs O&M ☒ N/A
Remarks:

F. Cover Drainage Layer ☐ Applicable ☒ N/A

1. Outlet Pipes Inspected ☐ Functioning ☒ N/A
Remarks:

2. Outlet Rock Inspected ☐ Functioning ☒ N/A
Remarks:

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1. Siltation Areal extent _____ Size _____

☒ N/A ☐ Siltation not evident

Remarks: _____

2. Erosion Areal extent _____ Depth _____

☒ N/A ☐ Erosion not evident

Remarks: _____

3. Outlet Works ☐ Functioning ☒ N/A

Remarks: _____

4. Dam ☐ Functioning ☒ N/A

Remarks: _____

H. Retaining Walls ☐ Applicable ☒ N/A

1. Deformations ☐ Location shown on site map ☐ Deformation not evident

Horizontal displacement _____ Vertical displacement _____

Rotational displacement _____ ☒ N/A

Remarks: _____

2. Degradation ☐ Location shown on site map ☐ Degradation not evident

Remarks: N/A

I. Perimeter Ditches/Off-Site Discharge ☒ Applicable ☐ N/A

1. Siltation ☐ Location shown on site map ☒ Siltation not evident

Areal extent _____ Depth _____

Remarks: _____

2. Vegetative Growth ☐ Location shown on site map ☐ N/A

☒ Vegetation does not impede flow

Areal extent _____ Type _____

Remarks: _____

3. Erosion ☐ Location shown on site map ☒ Erosion not evident

Areal extent _____ Depth _____

Remarks: _____

4. Discharge Structure ☐ Functioning ☒ N/A

Remarks: _____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. Settlement ☐ Location shown on site map ☐ Settlement not evident

Areal extent _____ Depth _____

Remarks: N/A

2. Performance Monitoring Type of monitoring _____

☐ Performance not monitored Frequency _____ ☐ Evidence of breaching

Head differential _____

Remarks: N/A

IX. GROUND WATER/SURFACE WATER REMEDIES ☐ Applicable ☒ N/A

A. Ground Water Extraction Wells, Pumps, and Pipelines ☐ Applicable ☒ N/A

1. Pumps, Wellhead Plumbing, and Electrical

☐ Good condition ☐ All required wells located ☐ Needs O&M ☒ N/A

Remarks:

2. Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances

☐ Good condition ☐ Needs O&M

Remarks: N/A

3. Spare Parts and Equipment

☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks: N/A

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☐ N/A

1. Collection Structures, Pumps, and Electrical

☐ Good condition ☐ Needs O&M

Remarks: N/A

2. Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances

☐ Good condition ☐ Needs O&M

Remarks: N/A

3. Spare Parts and Equipment

☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided

Remarks: N/A

C. Treatment System ☐ Applicable ☒ N/A

1. Treatment Train (Check components that apply)

☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
☐ Air stripping ☐ Carbon absorbers
☐ Filters _____
☐ Additive (e.g., chelation agent, flocculent) _____
☐ Others _____
☐ Good condition ☐ Needs O&M
☐ Sampling ports properly marked and functional
☐ Sampling/maintenance log displayed and up to date
☐ Equipment properly identified
☐ Quantity of ground water treated annually _____
☐ Quantity of surface water treated annually _____
Remarks: _____

2. Electrical Enclosures and Panels (Properly rated and functional)
☒ N/A ☐ Good condition ☐ Needs O&M
Remarks: _____

3. Tanks, Vaults, Storage Vessels
☒ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs O&M
Remarks: _____

4. Discharge Structure and Appurtenances
☒ N/A ☐ Good condition ☐ Needs O&M
Remarks: _____

5. Treatment Building(s)
☒ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
☐ Chemicals and equipment properly stored
Remarks: _____

6. Monitoring Wells (Pump and treatment remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs O&M ☒ N/A
Remarks: _____

D. Monitored Natural Attenuation ☐ Applicable ☒ N/A

1. Monitoring Wells (Natural attenuation remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled (quarterly) ☐ Good condition
☐ All required wells located ☐ Needs O&M ☒ N/A
Remarks: _____

X. OTHER REMEDIES

If there are remedies applied at the site that are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

Some of the site's warning signs are down or turned in the wrong direction, most of the coverage is dead vegetation due to dry conditions, some erosion noted at the top of the riprap exposing the geotextile material (condition noted after the occurrence of Hurricane Ike), during the hurricane the site was under approximately 4 feet of salt water, the land owner is concerned with the integrity of the bridge due to the steel beam underneath being exposed to salt water during the hurricane (Ike occurred on 13 September 2008 per land owner). Land owner stated that he has not seen any armadillos at the site since Ike and all of the burrows are old or inactive. Vegetation was noted growing in the riprap, and there are patches of sparse vegetation with deep cracks (approximately 6 inches in depth and varying in length). Fire ant mounds were noted and depression with ruts on the East Dike Cap was identified by the land owner but it was difficult to see it during the site walk due to the high vegetation in the area. Damaged signs were noted on the south side of the North Dike Cap, an abandoned animal borrow was noted between the 2nd and 3rd vents located on the west side of the N Cap & a sign was missing by the 3rd vent on the North Dike Cap. The fence on the north side of the main entrance requires replacement.

B. Adequacy of O&M

Land owner believes the site needs more consistent maintenance (i.e., mowing) and sign replacement.

C. Early Indicators of Potential Remedy Failure

Damaged fence, exposed geotextile, cracks in caps, sparse vegetation in areas, vegetative growth in riprap, depression and ruts on East Dike Cap, damages or missing warning signs.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

The O&M contractor should review the O&M manual and update it accordingly.

Inspection Team Roster		
Name	**Organization**	**Title**
Chris Villarreal	U.S. Environmental Protection Agency Region 6	Remedial Project Manager
Dean Perkins	Texas Commission on Environmental Quality	Project Manager
Rodney Townsend	Landowner	Not applicable
April Ballweg	EA Engineering, Science, and Technology, Inc.	Contractor to the U.S. Environmental Protection Agency

Attachment 3

Site Survey Forms

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY		
Site Name: Bailey Waste Disposal Superfund Site		**EPA ID No.:** TXD980864649
Location: Orange County, Texas		**Date:** 5/4/10
Contact Made By:		
Name: April Ballweg	**Title:** Project Manager	**Organization:** EA Engineering, Science, and Technology, Inc.
Telephone No.: (972) 459-5019 **E-Mail:** aballweg@eaest.com	**Street Address:** 405 S. Highway 121 Building C, Suite 100 **City, State, Zip:** Lewisville, Texas 75067	
Name: Cristina Radu	**Title:** Project Manager	**Organization:** EA Engineering, Science, and Technology, Inc.
Telephone No.: (505) 224-9013 **E-Mail:** cradu@eaest.com	**Street Address:** 320 Gold Avenue, SW, Suite 1210 **City, State, Zip:** Albuquerque, NM 87102	
Individual Contacted:		
Name: Chris Villarreal	**Title:** Remedial Project Manager	**Organization:** U.S. EPA
Telephone No.: (214) 665-6758 **E-Mail Address:** Villarreal.Chris@epamail.epa.gov	**Street Address:** 1445 Ross Avenue, Suite 1200 **City, State, Zip:** Dallas, TX 75202	

Survey Questions

The purpose of the five-year review is to evaluate the implementation and performance of the remedy, and to confirm that human health and the environment continue to be protected by the remedial actions that have been performed at the site. This interview is being conducted as a part of the third five-year review for the Bailey Waste Disposal Superfund Site. ***Should you choose to respond, please return your survey form to Cristina Radu at EA Engineering, Science, and Technology, Inc. via email or U.S. Postal Service by May 18, 2010.*** *The scope of the review is from 2005 to present.*

1. What is your general impression of the work conducted at the site during this review period?

During the past five years, the site has been directly impacted by the Hurricane Rita (September 2005) and Hurricane Ike (September 2008). Hurricane Ike had a significant storm surge which resulted in the flood waters covering the landfill caps. These hurricanes, while not resulting in substantial damage to the site's north and east landfill caps, did cause significant damage to the site fencing, signage, and buildings owned by the site's property owner. The majority of the work conducted during the review period was a result of these hurricanes. Other activities conducted during the review period included site inspections conducted in May 2006 and December 2007. The area of the East Dike Cap between the 3rd and 4th gas vents was noted to be an area where settlement has occurred.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY	
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 5/4/10

2. What effect have site operations had on the surrounding community during this review period?

The site operations have had little to no effect on the surrounding community.

3. During this review period, are you aware of any community concerns regarding the site or its operation and administration? If so, please provide details.

On Friday, April 2, 2010, the EPA Superfund Redevelopment Web site received an e-mail from an Orange County resident regarding the Bailey Waste Disposal site. This request asked several questions regarding the status of the site and if the site posed any potential impacts on the surrounding community. This request was forwarded to the EPA Region 6 for response. An email response was provided on Monday, April 5, 2010. A redacted copy of the initial request and EPA's response is attached.

4. Are you aware of any events, incidents, or activities at the site during this review period, such as vandalism, trespassing, or emergency responses from local authorities? If so, please provide details.

Mr. Rodney Townsend (the property owner) stated in a previous email and during the site inspection on May 18, 2010, that his residence which is located adjacent to the site's North Dike Area had been robbed. Mr. Townsend has taken steps to secure his home and the site in general.

In regards to trespassing, Mr. Townsend stated that when trespassers are identified, they are immediately asked to leave.

5. Do you feel well informed about the site's activities and progress?

Yes – I feel well informed about site activities.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY	
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 5/4/10

6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation?

In general, the site has been well maintained. However, to ensure the long-term protectiveness of the North Dike Area and East Dike Area landfill caps, periodic maintenance needs to continue. For example, previous inspections have noted that settlement has occurred between the 3rd and 4th air vent on the East Dike Area. While noted, no action has been taken to address this condition.

7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please describe the purpose and results.

No routine communications or activities have occurred.

8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please summarize the events and results?

In response to Hurricane Rita, a site inspection was conducted by EPA's office. Action items were identified and communicated to the Bailey Site Settlors Committee for response.

9. Are you aware of any problems or difficulties encountered which impacted the effectiveness of the remedial action or caused a change in operation and maintenance procedures? If so, please describe changes and impacts.

No.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY	
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 5/4/10

10. Have there been any changes in state or federal environmental standards which may call into question the protectiveness or effectiveness of the remedial action?

No.

11. Do you know of opportunities to optimize the operation and maintenance efforts at the site?

No.

Fw: Citizen Concern re: Bailey Waste Disposal

Casey Luckett to: Chris Villarreal 04/05/2010 08:08 AM

Hey Chris - The email below came into the national Superfund Redevelopment website. The contractors who run the site directed it to me since it really is more of a citizen concern than a legitimate redevelopment/reuse question.

The citizen's contact information is located near the bottom of the comment.

Thanks,

Casey Luckett Snyder
Environmental Engineer
Brownfields Program and Superfund Reuse Coordinator
US EPA Region 6
214.665.7393

----- Forwarded by Casey Luckett/R6/USEPA/US on 04/05/2010 08:06 AM -----

FW: (091082601) Comments from Superfund Redevelopment Program Web site

Kristin Sprinkle to: Casey Luckett 04/02/2010 01:31 PM

Cc: "'Corinne Cayce'", Frank Avvisato

Hi Casey,

As part of Frank and Melissa's SRI website, we sometimes get viable (e.g., not spam) requests for information about sites. For reuse-related questions, we answer those and usually copy the SRI coordinator and HQ so they know what's going on. This one seemed to be more in the vein of someone requesting specific information regarding the cleanup of a site, and I thought it might be wise to pass this on to you directly. If there is anything you would like us to do to help, we can certainly do so, but I wouldn't want to try and provide information regarding a request like this unless specifically asked.

Sincerely,

Kristin

-----Original Message-----
From: idaemon.rtpnc.epa.gov [mailto:idaemon@unixpub.epa.gov]
Sent: Friday, April 02, 2010 8:26 AM
To: ksprinkle@e2inc.com
Subject: (091082601) Comments from Superfund Redevelopment Program Web site

COMMENTS_OF_REQUESTOR:I am concerned about the water and land where my family and live, work and use the waterways for recreation.

What has the two most recent significant DIRECT hitting HURRICANES "RITA" and "IKE" impacted on this below listed Superfund Site??? Has the Bailey Waste site been checked to see if it is emitting hazardous waste to shallow waters, land conditions, the Neches river, fishing, crabbing, hunting individuals along Highway 73?? What is the emissions of the Baileys Waste landfill of April 2010 to air, water, and land pollution? What impact does it have to personal water wells ??

Site Name: BAILEY WASTE DISPOSAL
EPA ID: TXD980864649
Address: HWY 87 S @ RAINBOW BRIDGE
BRIDGE CITY, TX 77611
Other Names: GULF ST UTIL/BAILEYS SABINE LAKE BRIDGE
Site Ownership: Private
Category of Site: Landfill
Date of Final Listing on the NPL: June 10, 1986

Please respond to my email.
April 2, 2010
[redacted]
Orange, Texas 77630

EMAIL_OF_REQUESTOR:[redacted]
NAME_OF_REQUESTOR:[redacted]
ORG_OF_REQUESTOR:Concerned Individual Citizen
submit:Send Comment

This information is for tracking purposes only.
Submitting script: /cgi-bin/mail.cgi
Submitting host: cpe-72-178-230-181.gt.res.rr.com (72.178.230.181)
Browser: Mozilla/4.0 (compatible; MSIE 8.0; Windows NT 5.1; Trident/4.0; GTB6.4; Tablet PC 1.7; .NET CLR 1.0.3705; .NET CLR 1.1.4322; .NET CLR 2.0.50727; .NET CLR 3.0.4506.2152; .NET CLR 3.5.30729)
Referred: http://epa.gov/superfund/programs/recycle/contact/index.html
TSSMS: oerrpage
Mail to File: reuse.txt

To: [redacted]
Cc: Casey Luckett/R6/USEPA/US,
Bcc:
Subject: Bailey Waste Disposal Superfund Site - Information Request

Dear [redacted]:

I was forwarded your request regarding the Bailey Waste Disposal Superfund Site. The following are responses to your questions:

What has the two most recent significant DIRECT hitting HURRICANES "RITA" and "IKE" impacted on this below listed Superfund Site???

In response to your first question regarding impacts from Hurricanes Rita in 2005 and Hurricane Ike in 2008 to the site, please note that site inspections were conducted following each of these hurricanes. Damage to the fence and buildings on the property were identified. However, the landfill covers were not found to be adversely impacted from hurricanes.

Has the Bailey Waste site been checked to see if it is emitting hazardous waste to shallow
waters, land conditions, the Neches river, fishing, crabbing, hunting individuals along Highway 73??

Yes.

Previous investigations at the site included installation of monitoring wells, soil borings, and biota sampling. As a result of the investigation, it was determined that drinking water was not impacted by the site. The investigation determined that if the existing site conditions were to degrade through a flood or other natural occurrences, contaminants contained in the levees could be released into the surrounding marsh.

During the investigation conducted at the Bailey Site in the 1990s, waste was found to have migrated out into the marsh. This waste was removed from the marsh and taken offsite for disposal. On-site waste was consolidated in two areas: the North Dike Area and East Dike Area. These two areas were subsequently covered with a multi-layer caps.

What is the emissions of the Baileys Waste landfill of April 2010 to air, water, and land pollution?

The EPA is not aware of any ongoing emissions from the Bailey Waste Disposal Site. However, the EPA is currently starting a Five-Year Review which will include a site inspection. The site inspection should take place within the next few months. The results of the Five-Year review will be made available to the public.

If you are aware of any current emissions from the Bailey Waste Disposal Site, please contact me at 214-665-6758 or by email at villarreal.chris@epa.gov

What impact does it have to personal water wells ??

Previous investigations at the Bailey Waste Disposal Site found no impacts to drinking water.

Attached for your information is a fact sheet which discusses cleanup activities conducted at the site.

BAILEY FACT SHEET.pdf

I hope this information is helpful. If you have any additional questions or would like to discuss the responses above, please feel free to contact me.

Sincerely,
Mr. Chris Villarreal
Remedial Project Manager
Superfund Division
214-665-6758

Subject: (091082601) Comments from Superfund Redevelopment Program Web site

COMMENTS_OF_REQUESTOR:I am concerned about the water and land where my family and live, work and use the waterways for recreation.

What has the two most recent significant DIRECT hitting HURRICANES "RITA" and "IKE" impacted on this below listed Superfund Site??? Has the Bailey Waste site been checked to see if it is emitting hazardous waste to shallow waters, land conditions, the Neches river, fishing, crabbing, hunting individuals along Highway 73?? What is the emissions of the Baileys Waste landfill of April 2010 to air, water, and land pollution? What impact does it have to personal water wells ??

Site Name: BAILEY WASTE DISPOSAL
EPA ID: TXD980864649
Address: HWY 87 S @ RAINBOW BRIDGE
BRIDGE CITY, TX 77611
Other Names: GULF ST UTIL/BAILEYS SABINE LAKE BRIDGE
Site Ownership: Private
Category of Site: Landfill
Date of Final Listing on the NPL: June 10, 1986

Please respond to my email.
April 2, 2010
[redacted]
Orange, Texas 77630

EMAIL_OF_REQUESTOR:[redacted]
NAME_OF_REQUESTOR:[redacted]
ORG_OF_REQUESTOR:Concerned Individual Citizen
submit:Send Comment

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY		
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649	
Location: Orange County, Texas	**Date:** 5/10/2010	
Contact Made By:		
Name: Chris Villarreal	**Title:** Remedial Project Manager	**Organization:** U.S. EPA
Telephone No.: (214) 665-6758 **E-Mail:** Villarreal.Chris@epamail.epa.gov	**Street Address:** 1445 Ross Avenue, Suite 1200 **City, State, Zip:** Dallas, Texas 75202	
Name: Cristina Radu	**Title:** Project Manager	**Organization:** EA Engineering, Science, and Technology, Inc.
Telephone No.: (505) 224-9013 **E-Mail:** cradu@eaest.com	**Street Address:** 320 Gold Avenue SW, Suite 1210 **City, State, Zip:** Albuquerque, NM 87102	
Individual Contacted:		
Name: Dean Perkins	**Title: Project Manager**	**Organization: TCEQ**
Telephone No.: 903-535-5175 **E-Mail Address:** dperkins@tceq.state.tx.us	**Street Address: 2916 Teague Drive** **City, State, Zip: Tyler, Texas 75701-3734**	

Survey Questions

The purpose of the five-year review is to evaluate the implementation and performance of the remedy, and to confirm that human health and the environment continue to be protected by the remedial actions that have been performed at the site. This interview is being conducted as a part of the third five-year review for the Bailey Waste Disposal Superfund Site. ***Should you choose to respond, please return your survey form to Mr. Villarreal during the site visit or send to Cristina Radu at EA Engineering, Science, and Technology, Inc. via email or U.S. Postal Service by the end of May, 2010].*** *The scope of the review is from 2005 to present.*

1. What is your general impression of the work conducted at the site during this review period?

I am satisfied that the O& M is proceeding as intended.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY	
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 5/10/2010

2. From your perspective, what effect have site operations had on the surrounding community?

The site is in a pretty isolated location. Therefore, other than the remedial operations being protective of the nearby canals and marshes, it has had little effect on the surrounding community.

Survey Questions (Continued)

3. During this review period, are you aware of any community concerns regarding the site or its operation and administration? If so, please provide details.

I am not aware of any community concerns.

4. Are you aware of any events, incidents, or activities at the site during this review period, such as vandalism, trespassing, or emergency responses from local authorities? If so, please provide details.

Hurricane Ike hit the area in 2008 inundating the site with storm surge and debris. There was a minimum of 3 to 5 feet of water over the site and some of the signage around the dikes was knocked down. The debris from the storm has since been removed and signs have been replaced. The caps on the diked areas were not damaged.

5. Do you feel well informed about the site's activities and progress? If not, please indicate how you would like to be informed about the site activities – for example, by e-mail, regular mail, fact sheets, meetings, etc.

Yes, information about the site activities was readily available on the TCEQ website.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY	
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 5/10/2010

6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation and maintenance?

None, the site in being managed appropriately.

Survey Questions (Continued)

7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please describe the purpose and results.

The TCEQ has participated in the previous five year inspections and site visits to assess storm damage as needed. The inspections determined the operation and maintenance are being performed as intended.

8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please summarize the events and results.

None other then the post hurricane inspection mentioned above.

9. Are you aware of any problems or difficulties encountered which impacted the effectiveness of the remedial action or caused a change in operation and maintenance procedures? If so, please describe changes and impacts.

None

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY	
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 5/10/2010

10. Have there been any changes in state or federal environmental standards which may call into question the protectiveness or effectiveness of the remedial action?

None

Survey Questions (Continued)

11. Do you know of opportunities to optimize the operation and maintenance efforts at the site?

None

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY		
Site Name: Bailey Waste Disposal Superfund Site		**EPA ID No.:** TXD980864649
Location: Orange County, Texas		**Date:** 5/10/2010
Contact Made By:		
Name: Chris Villarreal	**Title:** Remedial Project Manager	**Organization:** U.S. EPA
Telephone No.: (214) 665-6758 **E-Mail:** Villarreal.Chris@epamail.epa.gov	**Street Address:** 1445 Ross Avenue, Suite 1200 **City, State, Zip:** Dallas, Texas 75202	
Name: Cristina Radu	**Title:** Project Manager	**Organization:** EA Engineering, Science, and Technology, Inc.
Telephone No.: (505) 224-9013 **E-Mail:** cradu@eaest.com	**Street Address:** 320 Gold Avenue SW, Suite 1210 **City, State, Zip:** Albuquerque, NM 87102	
Individual Contacted:		
Name: Rodney Townsend	**Title:** Land Owner	**Organization:**
Telephone No.: 4097186947 **E-Mail Address:** rdqc@sbcglobal.net	**Street Address:** 7706 Hwy 87 (P.O. Box 2273) **City, State, Zip:** Bridge City, TX 77611	

Survey Questions

The purpose of the five-year review is to evaluate the implementation and performance of the remedy, and to confirm that human health and the environment continue to be protected by the remedial actions that have been performed at the site. This interview is being conducted as a part of the third five-year review for the Bailey Waste Disposal Superfund Site. ***Should you choose to respond, please return your survey form to Mr. Villarreal during the site visit or send to Cristina Radu at EA Engineering, Science, and Technology, Inc. via email or U.S. Postal Service by the end of May, 2010].*** *The scope of the review is from 2005 to present.*

1. What is your general impression of the work conducted at the site during this review period?

Work is only performed when there is an annual review or notification by EPA. Note signs down since Hurricane Ike September 13, 2008. Differential settlement since review of 2000. Mirafi fabric showing in several areas. Shows topsoil erosion on caps.

2. From your perspective, what effect have site operations had on the surrounding community?

None

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY	
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 5/10/2010

Survey Questions (Continued)

3. During this review period, are you aware of any community concerns regarding the site or its operation and administration? If so, please provide details.

NO

4. Are you aware of any events, incidents, or activities at the site during this review period, such as vandalism, trespassing, or emergency responses from local authorities? If so, please provide details.

Yes. Our building was broken into three (3) different times and the Sheriff's Department called.

5. Do you feel well informed about the site's activities and progress? If not, please indicate how you would like to be informed about the site activities – for example, by e-mail, regular mail, fact sheets, meetings, etc. I would like to receive a copy of Annual Reports

6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation and maintenance? The site needs to be maintained better. Mowing, weedeating & repairs need to be done more frequently.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY	
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 5/10/2010

Survey Questions (Continued)

7. **Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please describe the purpose and results.**

N/A

8. **Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please summarize the events and results.**

N/A

9. **Are you aware of any problems or difficulties encountered which impacted the effectiveness of the remedial action or caused a change in operation and maintenance procedures? If so, please describe changes and impacts.**

N/A

10. **Have there been any changes in state or federal environmental standards which may call into question the protectiveness or effectiveness of the remedial action?**

Not that I am aware of.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY	
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 5/10/2010
Survey Questions (Continued)	

11. Do you know of opportunities to optimize the operation and maintenance efforts at the site?

Change maintenance supplier to one that is more concientious. The last time they mowed I informed them the settlement area was wet. They mowed it anyway and left several ruts greater than 2" in depth

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY

Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 23 June 2010

Contact Made By: A. Ballweg

Name: Chris Villarreal	**Title:** Remedial Project Manager	**Organization:** U.S. EPA
Telephone No.: (214) 665-6758 **E-Mail:** Villarreal.Chris@epamail.epa.gov	**Street Address:** 1445 Ross Avenue, Suite 1200 **City, State, Zip:** Dallas, Texas 75202	
Name: Cristina Radu	**Title:** Project Manager	**Organization:** EA Engineering, Science, and Technology, Inc.
Telephone No.: (505) 224-9013 **E-Mail:** cradu@eaest.com	**Street Address:** 320 Gold Avenue SW, Suite 1210 **City, State, Zip:** Albuquerque, NM 87102	

Individual Contacted:

Name: Doug Wall	**Title:** O & M Operater	**Organization:** ARO
Telephone No.: 409-951-0503 **E-Mail Address:** N/A	**Street Address:** American Remediation Options, Inc. **City, State, Zip:** Lumberton, Texas	

Survey Questions

The purpose of the five-year review is to evaluate the implementation and performance of the remedy, and to confirm that human health and the environment continue to be protected by the remedial actions that have been performed at the site. This interview is being conducted as a part of the third five-year review for the Bailey Waste Disposal Superfund Site. ***Should you choose to respond, please return your survey form to Cristina Radu at EA Engineering, Science, and Technology, Inc. via email or U.S. Postal Service by 29 May 2010.*** *The scope of the review is from 2005 to present.*

1. What is your general impression of the work conducted at the site during this review period?

Same as it has always been. Some weather issues due to Hurricane Ike, like fence laid over, but repaired.

2. From your perspective, what effect have site operations had on the surrounding community?

Nothing.

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY	
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 23 June 2010

Survey Questions (Continued)

3. During this review period, are you aware of any community concerns regarding the site or its operation and administration? If so, please provide details.

No

4. Are you aware of any events, incidents, or activities at the site during this review period, such as vandalism, trespassing, or emergency responses from local authorities? If so, please provide details.

No

5. Do you feel well informed about the site's activities and progress? If not, please indicate how you would like to be informed about the site activities – for example, by e-mail, regular mail, fact sheets, meetings, etc.

Mr. Wall is called when it's time to mow or fix items, like landscaping or filling burrows.

6. Do you have any comments, suggestions, or recommendations regarding the site's management or operation and maintenance?

Nothing

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY	
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 23 June 2010

Survey Questions (Continued)

7. Have there been routine communications or activities (site visits, inspections, reporting activities, etc.) conducted by your office regarding the site? If so, please describe the purpose and results.

Twice to three times per year to conduct work at the site.

8. Have there been any complaints, violations, or other incidents related to the site that required a response by your office? If so, please summarize the events and results.

No

9. Are you aware of any problems or difficulties encountered which impacted the effectiveness of the remedial action or caused a change in operation and maintenance procedures? If so, please describe changes and impacts.

No

10. Have there been any changes in state or federal environmental standards which may call into question the protectiveness or effectiveness of the remedial action?

N/A

SUPERFUND FIVE-YEAR REVIEW SITE SURVEY	
Site Name: Bailey Waste Disposal Superfund Site	**EPA ID No.:** TXD980864649
Location: Orange County, Texas	**Date:** 23 June 2010

Survey Questions (Continued)

11. Do you know of opportunities to optimize the operation and maintenance efforts at the site?

No

Attachment 4

Site Inspection Photographs

Site Inspection Photographs
Bailey Waste Disposal Superfund Site Third Five-Year Review

Photograph No. 1 Site: Bailey Waste Disposal Superfund Site
Description: Entrance gate to Bailey Waste Disposal Superfund Site
Date: 18 May 2010 Direction: West

Photograph No. 2 Site: Bailey Waste Disposal Superfund Site
Description: Solar-powered, automatic gate opener.
Date: 18 May 2010 Direction: West

Photograph No. 3 Site: Bailey Waste Disposal Superfund Site
Description: Fencing north of main entrance gate.
Date: 18 May 2010 Direction: Northwest

Photograph No. 4 Site: Bailey Waste Disposal Superfund Site
Description: Alternate view of fence north of main entrance gate.
Date: 18 May 2010 Direction: Northeast

Photograph No. 5 Site: Bailey Waste Disposal Superfund Site
Description: Double-gated bridge to access road, view towards exit. Note concrete edge-new repair to concrete on left side.
Date: 18 May 2010 Direction: East

Photograph No. 6 Site: Bailey Waste Disposal Superfund Site
Description: View of I-beams supporting entrance bridge. Landowner noted rusting of beams since Hurricane Ike impacted site in 2008.
Date: 18 May 2010 Direction: West

Site Inspection Photographs
Bailey Waste Disposal Superfund Site Third Five-Year Review

Photograph No. 7 Site: Bailey Waste Disposal Superfund Site
Description: Riprap along North Dike Cap.
Date: 18 May 2010 Direction: West

Photograph No. 8 Site: Bailey Waste Disposal Superfund Site
Description: Vegetative growth noted through riprap area of North Dike Cap.
Date: 18 May 2010 Direction: West

Site Inspection Photographs
Bailey Waste Disposal Superfund Site Third Five-Year Review

Photograph No. 9 Site: Bailey Waste Disposal Superfund Site
Description: North capped area.
Date: 18 May 2010 Direction: West

Photograph No. 10 Site: Bailey Waste Disposal Superfund Site
Description: North capped area. Note passive gas vent.
Date: 18 May 2010 Direction: East

Photograph No. 11 Site: Bailey Waste Disposal Superfund Site
Description: Passive gas vent up close, note bug screen in place.
Date: 18 May 2010 Direction: N/A

Photograph No. 12 Site: Bailey Waste Disposal Superfund Site
Description: Example of warning signage at the edges of the caps.
Date: 18 May 2010 Direction: North

Photograph No. 13 Site: Bailey Waste Disposal Superfund Site
Description: Deep cracks (approximately 4 inches) in cap soil may be due to dry site conditions.
Date: 18 May 2010 Direction: NA

Photograph No. 14 Site: Bailey Waste Disposal Superfund Site
Description: Soil of cap cracking due to dry conditions.
Date: 18 May 2010 Direction: NA

Photograph No. 15 Site: Bailey Waste Disposal Superfund Site
Description: Additional view of soils on cap cracking due to dry conditions.
Date: 18 May 2010 Direction: NA

Photograph No. 16 Site: Bailey Waste Disposal Superfund Site
Description: Exposed geosynthetic liner at top of riprap on North Dike Cap; note sparse vegetation.
Date: 18 May 2010 Direction: West-Northwest

Site Inspection Photographs
Bailey Waste Disposal Superfund Site Third Five-Year Review

Photograph No. 17 Site: Bailey Waste Disposal Superfund Site
Description: North Dike Cap access road.
Date: 18 May 2010 Direction: Northwest

Photograph No. 18 Site: Bailey Waste Disposal Superfund Site
Description: Old abandoned burrow found in grass on North Dike Cap.
Date: 18 May 2010 Direction: NA

Site Inspection Photographs
Bailey Waste Disposal Superfund Site Third Five-Year Review

Photograph No. 19 Site: Bailey Waste Disposal Superfund Site
Description: View of warning sign in need of repair.
Date: 18 May 2010 Direction: NA

Photograph No. 20 Site: Bailey Waste Disposal Superfund Site
Description: View of typical warning sign along the water's edge of the dikes.
Date: 18 May 2010 Direction: South

Site Inspection Photographs
Bailey Waste Disposal Superfund Site Third Five-Year Review

Photograph No. 21 Site: Bailey Waste Disposal Superfund Site
Description: Overview of the East Dike Cap, note access road on right side of picture.
Date: 18 May 2010 Direction: NA

Photograph No. 22 Site: Bailey Waste Disposal Superfund Site
Description: View of area of depression on the East Dike Cap (near fourth vent).
Date: 18 May 2010 Direction: West

Site Inspection Photographs
Bailey Waste Disposal Superfund Site Third Five-Year Review

Photograph No. 23 Site: Bailey Waste Disposal Superfund Site
Description: Cracking of cap noted on East Dike Cap.
Date: 18 May 2010 Direction: NA

Photograph No. 24 Site: Bailey Waste Disposal Superfund Site
Description: Access gate at southwest end of East Dike Cap.
Date: 18 May 2010 Direction: West

Site Inspection Photographs
Bailey Waste Disposal Superfund Site Third Five-Year Review

Photograph No. 25 Site: Bailey Waste Disposal Superfund Site
Description: New chain-linked fence (left side) tied into old chain-linked fence (right side). Fence was repaired (portion replaced) along the east side of the East Dike Cap after Hurricane Ike
Date: 18 May 2010 Direction: East

Photograph No. 26 Site: Bailey Waste Disposal Superfund Site
Description: Riprap with vegetative growth noted on west side of East Dike Cap.
Date: 18 May 2010 Direction: Northeast

Attachment 5

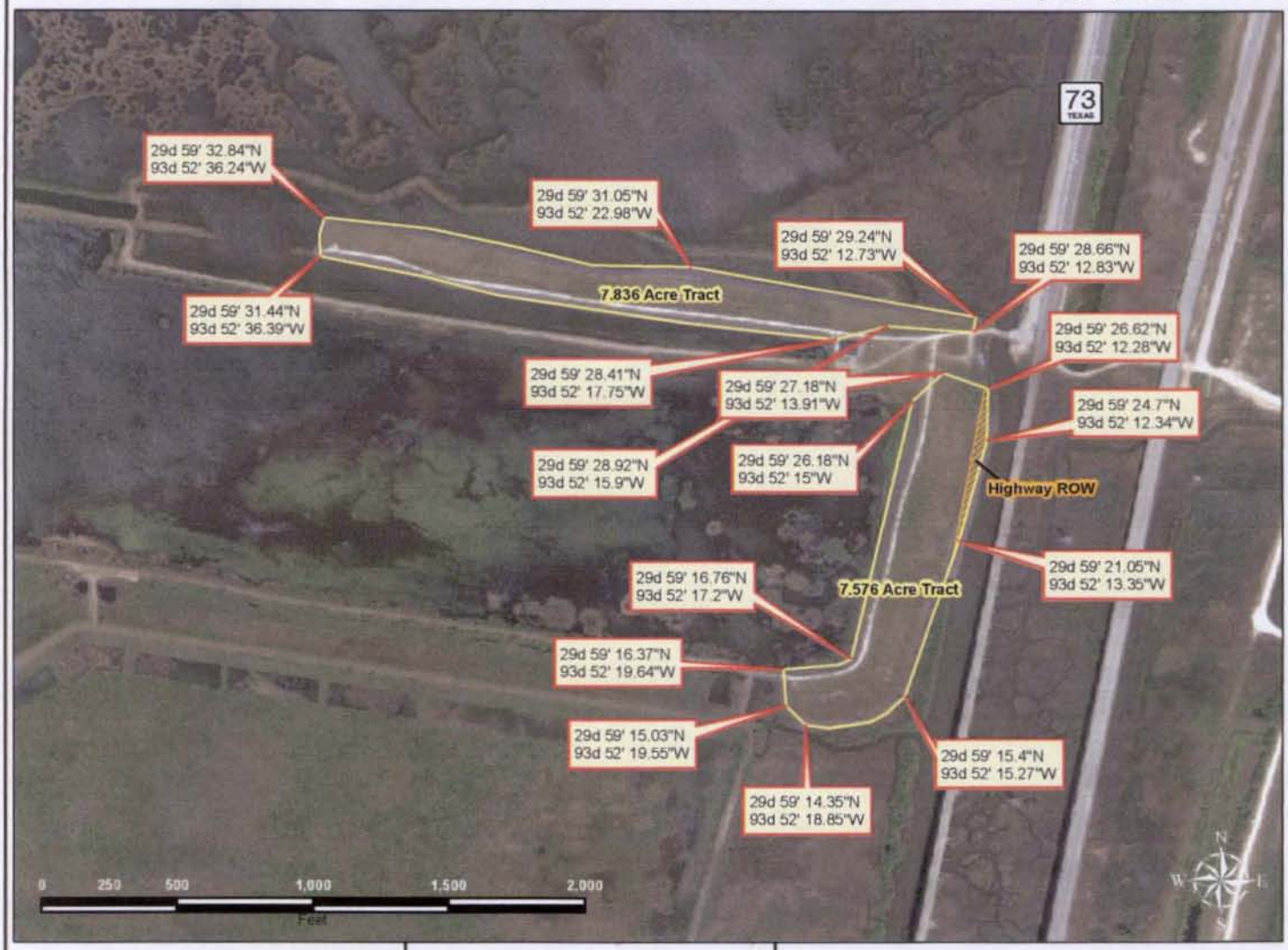
Deed Notice

Bailey Waste Superfund Site
Orange County, Texas

BURIED CONTAMINANTS - STOP BEFORE YOU DIG!

Posted Site, within a 6-ft Chain Link Fence / Gated Entrance

Any reuse, development, or other activities involving subsurface utilities, trenching, excavation, well installation, or other surface disturbance requires prior approval by TCEQ, USEPA, and the property owner



Capped 7.836 acre tract on privately owned property as recorded in Volume 1107, Page 890 of Orange County Deed Records.

Capped 7.576 acre tract on privately owned property as recorded in Volume 719, Page 972 of Orange County Deed Records.

Deed Notice of Capped Facility

EPA ID# TXD980864649
Congressional District 8

Image from GlobeXplorer
04/09/2005 1:5,000
Map Created 07/07/06
EPA Region 6 - GIS Support
Dallas, TX
20070714J801 LOCKHEED MARTIN

As a representative of the U.S. Environmental Protection Agency, I hereby affirm that the facts and information contained herein are truthful and accurate to the best of my knowledge, and that the filing of this notice is required by the USEPA.

Scott Harris
Scott Harris, Ph.D.

State of Texas, County of Dallas

This instrument was acknowledged before me on 7/27/06 by Scott Harris

Jacqueline Samuel
Notary Public's Signature

JACQUELINE SAMUEL
MY COMMISSION EXPIRES
FEBRUARY 24, 2007